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**STREAMLINING ORGANIZATION STRUCTURES:  
APPLICATION TO THE U. S. NAVY BUREAU OF SHIPS**

**MERTON DICK VAN ORDEN**

State School

1911

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**TITLE:** STREAMLINING ORGANIZATION STRUCTURES: APPLICATION TO THE U.S. NAVY BUREAU OF SHIPS

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**PROBLEM RAISED BY PAPER:**

This paper reviews some of the principles and concepts which have been advanced by authors in the fields of management and organization. Those concepts which seem to have the most promise are discussed in detail and are developed into guidelines for simplifying and streamlining organization structures.

The writer proposes an approach to structuring organizations which is based upon the use of five INTRINSIC FUNCTIONS which he says may be found throughout all organizations. He defines these functions and shows how they may be used to segregate and clarify operations and elements of organizations.

Application of the streamlining principles to simple organizations, both military and civilian, is demonstrated. Application to a large, complex organization, the U.S. Navy Bureau of Ships, is demonstrated in theory. This application, along conceptual lines, is without regard to many factors involved and considers only the theoretical concepts and principles. It shows how, in theory, a large, complex organization may be simplified and streamlined. It implies that the results will be increased efficiency and effectiveness.

**CONCLUSIONS:**

Good organizations are needed to help men do their jobs better, rather than hinder them in their work. Such organizations are the result of planning and effective structuring.

Organizations should be structured by functions. Use of the five INTRINSIC FUNCTIONS will assist in logical structuring of any organization.

Streamlining of organization structures can assist any organization, large or small, civilian or military, in performing its required functions and in better utilization of its personnel.







STREAMLINING ORGANIZATION STRUCTURES:  
APPLICATIONS TO THE U.S. NAVY  
BUREAU OF SHIPS

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## PREFACE

The writer has long been interested in organizations and in the ways they work, or fail to work. The interplay of personalities, policies, responsibilities, and authorities produces interesting results--at times good, at other times bad--but always interesting.

The variety of organization structures and the range of organizational performances in military-civil service organizations is particularly interesting. Many such formal organizational elements have grown in rather haphazard fashion, seldom operating in the manner for which they were originally designed. They may have changed structure periodically with the whims of a variety of organizers. Elements may have been added or removed for various reasons without serious thought being given to the overall effect on the whole organization. New elements may have been added to take care of new assignments of responsibility, or to divide the workload among overloaded people--or they may have been added simply to justify the rank, or grade level, or salary of some individual. New organization structures are sometimes created to justify additional levels of supervision, with corresponding increases in the salary levels of those involved. The net result: These organizations tend to be built of layer upon layer of supervision, with no clear delineation of authority and responsibility.



The same problems are undoubtedly found in civilian business organizations; however, perhaps because of the profit motive, the constant interest of owners or shareholders, and the ability to dismiss those seemingly responsible for ineffective performance, such organizations may not demonstrate problems of structure to the same degree as do the purely governmental ones.

The same basic principles may be applied to all types of organizations. Professors Koontz and O'Donnell, discussing management theory, have said:

Perhaps organization is the most fully developed area of management theory. Its importance was recognized earlier than that of other aspects of management, and its principles have been the more completely explored and developed. Although many principles undoubtedly remain undiscovered, the area is a fruitful one to analyze with a view to determining how to make these principles work.<sup>1</sup>

It is the purpose of this paper to examine some of those principles, to develop others, perhaps among those that remain undiscovered, and to analyze the basic concepts of organization and organizational structuring with the hope that some guidelines can be developed for simplifying and streamlining organization structures.

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<sup>1</sup>Harold Koontz and Cyril O'Donnell, Principles of Management: An Analysis of Managerial Functions (2nd ed.; New York, Toronto, London: McGraw-Hill Book Co., Inc., 1959), p. 280.



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STREAMLINING ORGANIZATION STRUCTURES:

APPLICATIONS TO THE U.S. NAVY

BUREAU OF SHIPS

INTRODUCTION

Admiral Arleigh Burke, Chief of Naval Operations, speaking before the Committee on Armed Services in 1958, stressed the requirements for effective personnel, saying: "Good men can make poor organizations work well, but poor men cannot make a good organization work at all." His meaning is clear: the Navy needs good men, not poor ones. Of equal importance, however, is a corollary that is frequently overlooked: it also needs good organizations.

Too often the principle: "Good men can make poor organizations work" is accepted, and good men work desperately hard to do their jobs and make poor organizations effective. More than this is required. Urgently needed are good organizations which can help men do their jobs well instead of making the difficulties greater. This fact was recognized in 1931 by the industrialist, Henry S. Dennison, who pointed out:

The importance of the right structure of organization is sometimes undervalued, because with the right men almost any kind of organization can run well. This is true, but is by no means the whole truth. With the finest of personnel, an illogical organization structure makes waste through internal friction and lost motion; it fails to retain and develop good men and to invite into its





membership new men of high quality.<sup>1</sup>

Good organizations do not just happen; they are carefully planned and brought into being. The establishment of good organization structures is one of the most important aspects of modern management. In many cases organizations have grown haphazardly over a period of years; some have become so unwieldy and illogical that the best of men cannot keep them functioning efficiently.

This paper will examine the basic problems of structuring organizations, and will propose ways to simplify and improve the structures of organizations in being as well as those being formed. Streamlining can mean shaping or removing of protuberances so as to offer the least resistance to forward motion. Streamlining is necessary with many organizations, new and old. The purpose of this paper is to show how streamlining of the basic structures can assist any organization in improving its forward progress.

An examination of some theories and concepts of organization is necessary before proceeding to the problems of simplifying structures. The discussion of these theories will be followed by an evaluation of principles and further application of some of the principles to the problem of providing a more effective and workable structure for an organization. Some guidelines will be developed for simplifying, streamlining,

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<sup>1</sup>Henry S. Dennison, Organization Engineering (New York: McGraw-Hill Book Co., Inc., 1931), pp. 5-6.



and improving organization structures.

The scope of an investigation of this type is necessarily limited to the material and the time available for research and for formulating a workable plan. This paper will be based upon library research and will pay particular attention to formulation of basic concepts and principles to assist in streamlining organizations. It will examine the application of principles to small organizations and will demonstrate the application of structuring concepts to both civilian and military organizations.

In Part II the concepts will be applied to a large, complex military/civil service organization. The Navy Bureau of Ships has been selected for this application, since it is fairly typical of the Bureaus of the Navy Department. The indicated restructuring of this complex organization will be wholly along theoretical lines, without regard to politics or personalities. The data on present elements at the Bureau of Ships and their functions will be taken from the Administrative Manual of the Bureau of Ships, published in March, 1963, as modified by changes 1 through 5.

Although it may seem presumptuous to undertake an analysis of this scope, the words of Professor (of Management) Dauten, of the University of Illinois, should be kept in mind:

In management, as well as in other areas of learning, the capacity of scholars to challenge traditional and deeply ingrained patterns of thinking plays an important role in the discovery of new knowledges.<sup>1</sup>

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<sup>1</sup>Paul M. Dauten, Jr., Current Issues and Emerging Concepts in Management (Boston: Houghton Mifflin Co., 1962), p. viii.



PART I

ORGANIZATION CONCEPTS AND PRINCIPLES



## CHAPTER I

### FORMATION OF ORGANIZATIONS

Just what is meant by the structure of an organization? It has been spoken of by various names such as "the executive structure" and the "chain of command." Dr. Henry H. Albers, professor, author, and consultant, says of it: "The organizational structure is the framework within which managerial and operating tasks are performed."<sup>1</sup>

When forming an organization the structure must be established early and the framework described accurately from the beginning. It should be carefully examined for applicability to the purposes of the organization. Newman describes the process as:

The administrative process of organizing an enterprise or any of its parts consists of (1) dividing and grouping the work that should be done (including administration) into individual jobs, and (2) defining the established relationships between individuals filling these jobs.<sup>2</sup>

All organizations are formed for the accomplishment of some purpose, the attainment of some objective--stated or

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<sup>1</sup>Henry H. Albers, Organized Executive Action: Decision Making, Communication, and Leadership (New York and London: John Wiley and Sons, Inc., 1962), p. 65.

<sup>2</sup>William H. Newman, Administrative Action: The Techniques of Organization and Management (New York: Prentice-Hall, Inc., 1951), p. 123.





unstated. They may be formed for business, military, or political purposes, or they may be purely social in nature. Theodore Levitt, lecturer and faculty member of the Harvard School of Business, in discussing the need for organization, said:

The purpose of organizations is to achieve the kind and degree of order and conformity necessary to do a particular job. Without organization there would be chaos and decay. Organization exists in order to create the amount and kind of inflexibility that are necessary to get the most pressing intended job done efficiently and on time.<sup>1</sup>

In general, organizations exhibit certain universal characteristics. First, they are composed of people who are joined together for a common purpose. Second, they usually can be divided into leaders and followers, with the leaders, or managers, being those who are either formally appointed to their positions or who informally assume positions of authority. Finally, each organization usually operates in definable patterns, which may depend upon either its goals or its leaders.

There are two basic types of organizations: one is the formal organization, one that has been planned and whose structure has been arranged; and the other is the informal organization, one that comes into being without planning or direction. Albers says, "Formal organizations are consciously directed and designed to accomplish a pre-determined objective."<sup>2</sup> Most organizations are formal organizations, in the sense that

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<sup>1</sup>Theodore Levitt, "Creativity Is Not Enough," Harvard Business Review, May-June, 1963, p. 81.

<sup>2</sup>Albers, p. 5.



they have been planned and their structures designed to operate in a logical manner for the accomplishment of their objectives. Professor Argyris speaks of the characteristics of formal organizations, saying:

Probably the most basic property of formal organization is its logical foundation or, as it has been called by students of administration, its essential rationality. It is the "mirror image" of the planner's conception of how the intended consequences of the organization may best be achieved. The underlying assumption made by the creators of formal organization is that man within respectable tolerances will behave rationally, i.e., as the formal plan requires him to behave. Organizations are formed with a particular objective in mind and their structure mirrors these objectives.<sup>1</sup>

Informal organizations, on the other hand, come about without prior planning or conscious direction. They usually form from a desire to "get the job done in the easiest manner." The informal way of performing a job may develop from friendships, cliques, mutual interests or antagonisms, effective communication channels, or simply from strong and dynamic leadership on the part of individuals not in the formal "chain of command."

Informal organizations may, and often do, exist in such gatherings as families, neighborhood groups, sports teams, and similar groups of people. They are also found in more formally structured business, military, and political groups. The informal organization may actually be completely different from the formal organization, and may cut across the organizational

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<sup>1</sup>Chris Argyris, Personality and Organization (New York: Harper and Brothers, 1957), pp. 54-55.



bounds that have been formally established. The informal mode of operation is usually arrived at by working people who, by trial and error methods, have found a way to get the job done. This pattern is recognizable at all levels of organizations, and many times the really effective work is accomplished through the informal organization. Despite the fact that these units are labeled "informal," they have an important influence on the organization in which they exist. It has been pointed out that:

From all available evidence, there is yet no reason to conclude that informal structures are any less stable or less demanding upon group members than formal ones.

In many cases a formal organization may have within it, or parallel to it, an informal organization which is quite different. Thus, the members of a group may be expected to do certain things, or relate to others in certain ways, according to the formal organization, but may also feel quite different influences stemming from the informal organization.<sup>1</sup>

The formal organization, then, may be thought of as the way a unit was designed to work, and the informal one as the way some of its functions are actually performed. Both are important. Both must be kept in mind when working with organizations. Both must be given full consideration when streamlining organization structures. As Henry Albers says,

An organizer cannot possibly plan the totality of activities and interactions that make up organizational behavior. The informal system modifies and amplifies the formal system and creates more comprehensive and complex behavioral patterns. . . . Informal means frequently compensate for deficiencies in the planned structure. . . . Such informal instruments are frequently as efficient and sometimes more

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<sup>1</sup>Dorwin Cartwright and Alvin Zander, Group Dynamics: Research and Theory (3rd ed.; New York and Illinois: Row, Peterson and Co., 1958), p. 420.



efficient than those created by planning. The organizer should take care not to destroy them in developing his plan.<sup>1</sup>

The organizer must not, however, depend upon an informal organization to correct the deficiencies of his basic plan; this is no excuse for poor planning. He should recognize the informal organization when planning and designing the formal one. Wherever possible, for maximum efficiency and for smooth-working effectiveness, the formal organization should be consistent with the informal one and should follow its form.

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<sup>1</sup>Albers, p. 68.





## CHAPTER II

### THE MANAGEMENT HIERARCHY

As an organization grows in size and importance, the management must also expand in numbers and in functions performed. When the size and complexity of operations exceeds the single manager who previously could handle the work, that manager finds it necessary to delegate some of his authority. The delegation process results in the manager's naming of an assistant, or possibly dividing the work among two or more subordinates, resulting in the formation of a small pyramidal structure. Additional growth adds height and breadth to the pyramid. Thus organizations are usually charted in the form of pyramids--some with broad bases and broad "span of control" for the managers, others with narrow bases and peaked, narrow management structures, with few subordinates for each manager to control. In recognition of these basic relationships, it has been said:

It is no accident that organizations are usually charted in pyramidal form. The pyramid itself implies a situation in which the head of the pyramid and of each subordinate part is the leader of a group. But it is necessary that there be more support for the leadership situation than the ability to chart a pyramid. The authority delegations and relationships must be such that the structure of organization actively supports the leadership position of the manager.<sup>1</sup>

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<sup>1</sup>Koontz and O'Donnell, p. 300.



The division of an organization into functional elements contributes to the pyramidal structuring, since each function is given its leader, and his subordinates are added as the work and growth progress. The dangers of expanding the size of the management structure may be readily seen. As the management becomes larger and more complex, its lines of communication become longer--more repeating of information is necessary, with the consequent possibility of loss of understanding. As layer upon layer of the management hierarchy develops, the problem is intensified, and management can become so enmeshed in its own coordination problems that the basic objectives are overlooked.

Robert B. Pamplin, President of the Georgia-Pacific Corporation, recently commented on the problems of expansion, saying:

The main problems in a large organization are communications and decision making. The more you broaden top management, the more your communications are going to break down, and the harder it will be to get a decision. I believe in a streamlined management . . .<sup>1</sup>

There are generally three recognizable levels in a pyramidal structure of an organization. At the base is the "working level"; this embodies the personnel actually doing the work of the organization: clerical, manufacturing, manual labor, engineering design, or other forms of work required. As the worker examines the organization, he acknowledges the peak of the pyramid with the top executive and his immediate subordinates. These are the bosses; they are seldom seen in

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<sup>1</sup>Robert B. Pamplin, "The Job of Being President," Dun's Review and Modern Industry, March, 1963, p. 27.



person by the workers. They devote their time to policy matters, to conferences with other top executives, and to social, political, and public representation of the organization. Because of their remoteness from the working level, and from the sites of the actual performance of the work, they are frequently called by the workers the "shirking level." In between the workers and the top executives are the layers of supervisory personnel who interpret the policies and plans and pass them on in terms of operational orders. They exercise control and are directly responsible for overseeing the workers and other subordinate supervisors to see that their work is done properly and on time. Their supervisory and control duties have earned for them the name of "the lurking level." Thus the management hierarchy, as viewed from the bottom of the pyramidal structure, presents a somewhat different picture from the one viewed from the top. Some writers in the management field believe that it is in the middle level that the most immediate structural improvements can be made. This intermediate level contains the greatest number of layers of supervision, or "supervisors, supervising supervisors." Increasing the supervision capability of each member of "middle management" can reduce the total number of supervisors.

Sir Ian Hamilton, retired British General and management theorist, developed a span of control principle from the history of military organization. His conclusions were that spans of control in any organization should range from three to six; that a span of three would keep an executive fairly busy, while



six would require about a ten-hour day. Hamilton thought that:

The nearer we approach the supreme head of the whole organization, the more we ought to work towards groups of three; the closer we get to the foot of the whole organization, the more we work towards groups of six.<sup>1</sup>

Hamilton's span of control principle is frequently overemphasized, and levels may be found with the span of control extending over only one or two subordinates. The requirements for an effective span of control must still be considered; but with modern management techniques and modern awareness of the communications requirements, the span of control can be extended beyond the limits previously thought possible--even beyond the limits set by Hamilton.

The control functions of middle management can be facilitated and speeded by use of modern Data Processing techniques; thus many of the middle layers of supervision can be completely eliminated. In effect, the data processing systems give to the managers a larger effective span of control and make possible a greater breadth of management and a closer association with the work being done. For example, the PERT techniques in use and the various methods of production control and workload scheduling, with their reporting and control procedures, make available to high level managers a much more rapid and much better organized information and decision capability than was ever possible from several layers of subordinate managers. Proper use of these and other techniques

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<sup>1</sup>Sir Ian Hamilton, The Soul and Body of an Army (New York: George H. Doran Co., 1921), p. 230.





and proper use of modern Automatic Data Processing can result in elimination of many layers of middle management, with consequent savings in time, costs, and manpower. With the use of these new techniques can come a more efficient streamlined management structure.



## CHAPTER III

### THE HUMAN ELEMENT

No discussion of organization can be complete without consideration of that all-important element--Personnel. Organizations are staffed with people, and people must be considered when designing the organization structure. As Admiral Burke said (Chapter I), "Good men can make poor organizations work well . . . ." If there were a superabundance of really good men, organizational planning would not be nearly so important.

The fact remains, however, that there are never enough exceptional people to fill the jobs requiring them. This is true in business, in the military, and in any government organization. The problem is particularly acute in military/civil service organizations, where the military officer must be moved periodically and the civil servant is free to move to other assignments. Unless a well-designed organization of the right structure is formed to provide for continuity of relationships and duties, these moves can result in chaos, for it is impossible to assure that really good men will be introduced to each job simultaneously and continuously, or that even those who are outstanding can do a fully competent job during their transition period.

Giving full attention to the transient nature of



personnel, one should first establish the structure or framework in which people will work. Many management experts have pointed out that this is the proper approach. Newman says:

Astute observers of organization have repeated time and again that organizations should decide the need for personnel rather than have personalities dictate the form of organization. An organization built around personalities is likely to give too much emphasis to some activities and not enough to others, and there is need for a major reshuffling of duties each time an executive retires or is promoted. The best practice is to design an organization that will best serve the purposes of the enterprise, and then select executives who are qualified for the positions created.<sup>1</sup>

Thus, in planning most organization, and certainly those in government, it is important to begin with the structure and functions without regard to the people involved. As Koontz and O'Donnell have so accurately reported,

The difficulty with much organizational planning is that it starts with people and builds around them, instead of beginning, as is proper and logical, with plans for the best possible organization to accomplish the enterprise objectives and then making necessary modifications for the human factor. Organizations must obviously operate with people. But an organization built around available personnel, with the shortcomings and lack of suitability of some members, can hardly reflect scientific grouping of activities and logical allocations of authority. . . . Essential to organization planning, then, is the search for an ideal form of organization to reflect the basic goals of the enterprise.<sup>2</sup>

If, when structuring the formal organization, the ways in which people work are fully taken into account, and the informal organizations are given consideration, then the structure will automatically be that most fitted to both the accomplishment of objectives and the satisfaction of personnel.

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<sup>1</sup>Newman, p. 140.

<sup>2</sup>Koontz and O'Donnell, p. 285.



It is obvious that not all eventualities can be planned for; neither can all individuals be made to fit the plan. The organization structure should be made sufficiently flexible within certain bounds to allow for exceptionally able people to perform at their maximum capacity. Koontz and O'Donnell have said:

Despite objective application of principles and the formulation of ultimate organization plans without regard to persons available for staffing it, the organization must, of course, be modified for the human element. Organizations must live. As such, they must necessarily take people into account.<sup>1</sup>

One of the most difficult personnel problems is that of finding a place in the organization for the truly creative individuals who have little regard for the normal day-to-day functioning of the organization, but who can make positive contributions if given the proper stimulus. Of these, Levitt has said:

There is some evidence that the relatively rigid organization can build into its own structure certain flexibilities which would provide an organizational home for the creative but irresponsible individual.<sup>2</sup>

In addition, Professor Marshall E. Dimock of New York University has contributed:

Organization structures must be gradually reshaped when necessary to accord with newly defined objectives and policies, to keep pace with social changes, and to allow the best use of human talent.

Top management should never hesitate to alter organization structures so as to make the best use of

<sup>1</sup>Ibid., p. 286.

<sup>2</sup>Levitt, Harvard Business Review, May-June, 1963, p. 82.





outstanding talent wherever it appears.<sup>1</sup>

The structuring of the organization, then, must be rigid enough to achieve its objectives, yet flexible enough to be modified as needed to meet changing requirements and to accommodate exceptional managers when they become available. How can the planner strike the delicate balance between the rigidity and flexibility required? There is no simple solution; it is a basic problem that management faces. There is hope that it can be done with proper planning and study.

The structuring of the organization must also recognize the need for clear understandable delegation of authority to those persons in management positions. The truly good manager will respond to responsibility; he will welcome the opportunity to prove his capability to perform. Each manager must be given an opportunity to demonstrate his capability, and each must be allowed to receive the praise or blame that his managerial performance shows is due him. A good organization structure will provide for such clear delineation of authority and responsibility. It will make the most effective use of people and will allow them to be rewarded according to their performances.

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<sup>1</sup>Marshall E. Dimock, Administrative Vitality (New York: Harper and Brothers, 1959), p. 146.



## CHAPTER IV

### ORGANIZATION BY FUNCTIONS

It was pointed out in Chapter I that all organizations exist for the accomplishment of some purpose or the attainment of some objective. It is therefore necessary in determining the structure of the organization to define the objectives, or purposes, and to direct the efforts of a part, or parts, of the group toward the desired end results. This inevitably leads to departmentation or division of the work. In large organizations the work may be divided by the functions to be performed, by the location in which the work is to be done, by the technical specialty of the workers, or by the product to be produced. Even in small organizations there is frequently a need to divide the work; some division is recognizable in so small a unit as a tiny proprietorship, where the owner divides his time between making a product, advertising it, and selling it to his customers. As organizations grow in size, the distinction between the functions of various people or groups of people becomes greater, and these natural divisions should be recognized in the structuring of the basic organization.

Albers comments on the functional planning of organization by saying:



The functional theorist plans in terms of the functional requirements of the organizational objective. A functional design is impersonal in its genesis and reflects an attempt to construct an "ideal" structure.<sup>1</sup>

Probably the first official recognition of the concept of "functionalization" was made by Frederick W. Taylor in 1903. Taylor had introduced functional foremanship in the Midvale Steel Company in the 1880's. He recognized the futility of every supervisor being a jack-of-all-trades, and the necessity for concentration of effort in a single area in order that the full effect of technical specialization might be realized. Taylor wrote:

Throughout the whole field of management the military type of organization should be abandoned, and what may be called the "functional type" should be substituted in its place. . . . If practicable the work of each man in the management should be confined to the performance of a single leading function.<sup>2</sup>

Ralph C. Davis also recognized the need for grouping together the various specialties under separate functional divisions. He says:

Organization structure is a relationship between certain functions, physical factors, and personnel. It is based on a grouping of functions in accordance with their similar characteristics and significances. It is set up for the purpose of promoting cooperation and facilitating the effective exercise of executive leadership.<sup>3</sup>

Later, discussing the need for functional divisions in a business

<sup>1</sup>Albers, p. 66.

<sup>2</sup>Frederick W. Taylor, Shop Management (New York: Harper and Brothers, 1911), p. 99.

<sup>3</sup>Ralph Currier Davis, The Fundamentals of Top Management (New York: Harper and Brothers, 1951), p. 18.



environment in order that the objectives may be realized, Davis added:

It is evident that the concept of business functions must be at least as broad as the concept of business objectives from which it is derived. A function therefore is any phase of the work of the organization that is necessary for the achievement of any proper or required organizational objective. It should be possible to distinguish it clearly from other phases of the organization's work. It should be separable from other such phases.<sup>1</sup>

Modern businesses recognize a great many different functions. The basic or "organic functions" have been identified by a number of writers as: production, sales, and finance. To these have been added such functions as personnel, advertising, public relations, engineering, accounting, research, purchasing, and many others. The extent to which an organization is subdivided and the importance given to each function will depend upon the type of organization and the objectives or goals set for it. Clearly, there is a need for a further definition of functions and objectives, and for a clarification of the methods of structuring organizations by their functional specialties.

This writer proposes a method for functional structuring based upon the primary functions to be performed. If organizations with functional divisions are examined, it may be noted that a further grouping of functions is often possible. Such grouping is the key to more effective structuring of organizations, since it makes possible a relatively simple relationship by placing the most elemental functions in a very few categories, which the writer defines as "INTRINSIC

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<sup>1</sup>Ibid., p. 202.





FUNCTIONS." These INTRINSIC FUNCTIONS are only five in number. They are recognizable and identifiable to some extent in any formal organization and in most informal organization.

The five INTRINSIC FUNCTIONS may be defined as:

#### DECISION Function

This is the responsibility of the top man in the unit. He may be the head of the corporation or command. He may also be the head of an office, department, division, branch, or other subordinate unit. He may have the responsibility for directing the entire organization, or he may only be responsible (to a superior level supervisor) for accomplishing one of the related INTRINSIC FUNCTIONS or one of the subordinate organic functions, such as sales, finance, production, etc. His is the DECISION function for his element. His responsibilities include resolving conflicts between his subordinates, when necessary, and making the final decisions on courses of action, recommendations, plans, and similar matters. He is the boss of his unit and has the responsibility for making the final decisions related to his organizational element.

#### STAFF Function

This is an advisory function. It is performed by "experts" who advise the decision making authority. These experts may be technical specialists, or consultants, or simply experienced personnel who are there for the purpose of "advising the boss." The STAFF Function may be located at any point in the organization; subordinate unit heads may have their staff

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advisors. These staffs, however, must be clearly identified as advisors, not as operating units with their own operating functions.

#### ACTION Function

This is the function for which the organizational element exists. All other functions should be subordinated to this "reason for being" and should serve its interests. The nature of this function depends upon the basic objectives of the organization; for example, in a manufacturing concern, the Production Department has the primary ACTION Function; in a retail store, Sales is paramount and is therefore the ACTION Function. There may be one or more than one organic or subordinate function within the framework of the intrinsic ACTION Function. Basically the ACTION Function is the most important function or group of functions required to accomplish the primary purposes of the organization.

#### INFORMATION Function

This is an intelligence operation; its responsibilities are the collection, evaluation, and dissemination of information. It serves the DECISION and ACTION authorities primarily, but may also provide information to others in the organization.

#### SUPPORT Function

This is the administrative or "housekeeping" function. Its principal reason for existence is to relieve the other functional elements of routine administrative and maintenance



matters. It is an assistance or service function to all of the other functional elements, and is important to the organization for the reason that it gives the other elements the opportunity to do their assigned tasks without distractions and with a minimum of interference.

These, then, are the most elemental functional groups. They may occur at any level in the management structure. They may include one or a number of organic or subordinate functional elements. Each of the organic functions that is required in an organization must be located in one of the INTRINSIC FUNCTION elements. The clear delineation of functional responsibilities and the placing of each functional element under one of the INTRINSIC FUNCTIONS will serve to clarify the purpose and objectives of all organizational elements.

These INTRINSIC FUNCTIONS are represented in their simplest form in the block diagram of Figure 1. Here may be seen their relationships with each other. It should be noted that all or parts of these INTRINSIC FUNCTIONS may occur at still lower levels--the SUPPORT element may contain an ACTION and an INFORMATION unit, for example. There are, however, no other INTRINSIC FUNCTIONS, and these five encompass all functions that any organization may be required to perform.

Figure 1 is drawn in the manner commonly used for presenting organizations in chart form. Although this form has come into almost universal usage, it cannot portray accurately the true relationships of organizations; it appears to limit



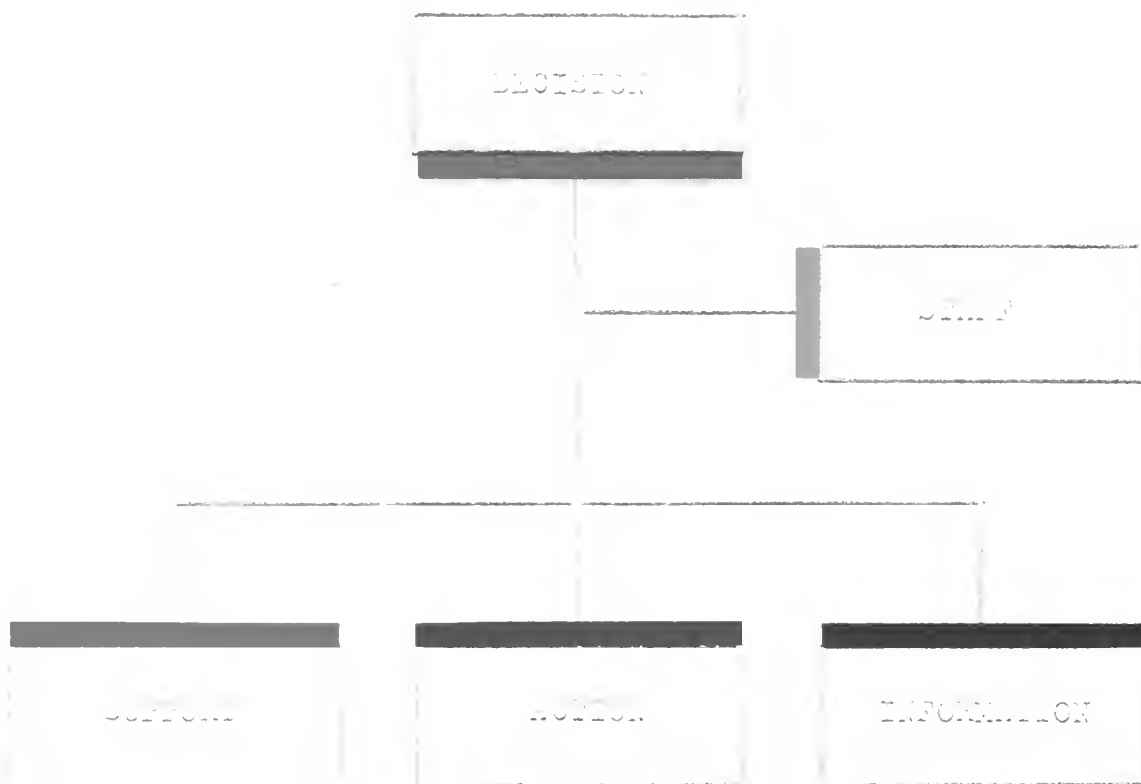


Fig. 1.--Relationship of Intrinsic Functions

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the communications and interrelationships to those lines drawn as connecting lines on the chart. Thus it appears to restrict operations between units, for example, to the line up to the superior and back down to the other units. This is not true in actual operations. Just as the DECISION function receives advice and assistance from his subordinate unit heads, so also do they advise and assist each others; their subordinate units freely communicate across the organization without recourse to the "chain of command" shown by the diagrams. Probably a more accurate representation of the true relationship is that shown on the chart of Figure 2. However, in view of the difficulty of representing complex organizations in the form of Figure 2, the normal method of organization charting will be used throughout this paper, and the operating relationships of Figure 2 will be assumed throughout.

Figure 3 depicts a typical small concern which manufactures and sells a consumer product. Here the structuring shows not only the INTRINSIC FUNCTIONS, but also their contained organic or subordinate functions. The further breakdown of each function into its subordinate units depends upon the size and complexity of the concern; in this instance only the Production function is carried to lower levels for purposes of illustration.

To show the versatility of this concept, a purely military organization is structured in a functional manner in Figure 4. A good example of a pure military organization in the Navy is a typical general purpose Destroyer. Its principal mission is the use of its guns, rockets, torpedoes, and depth



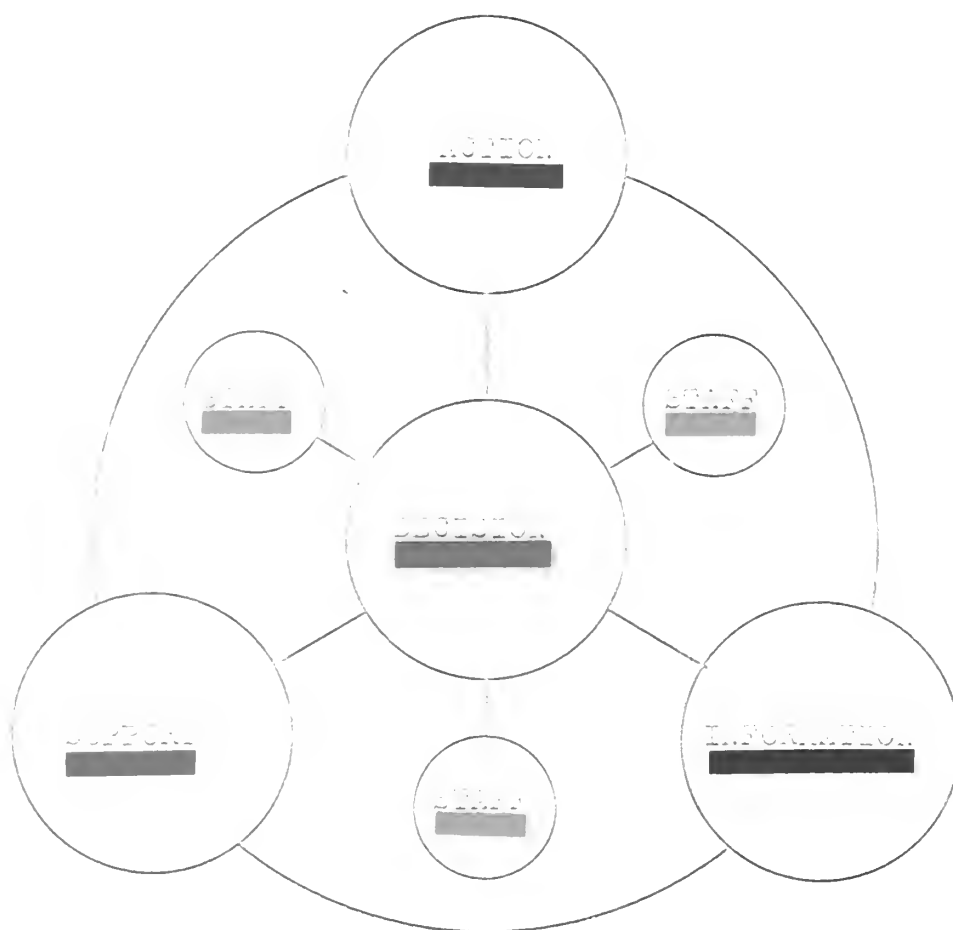


Fig. 2.--Accurate functional Relationships

*(continued)*

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Fig. 3.--Functions Performed by a Small Manufacturing Concern

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

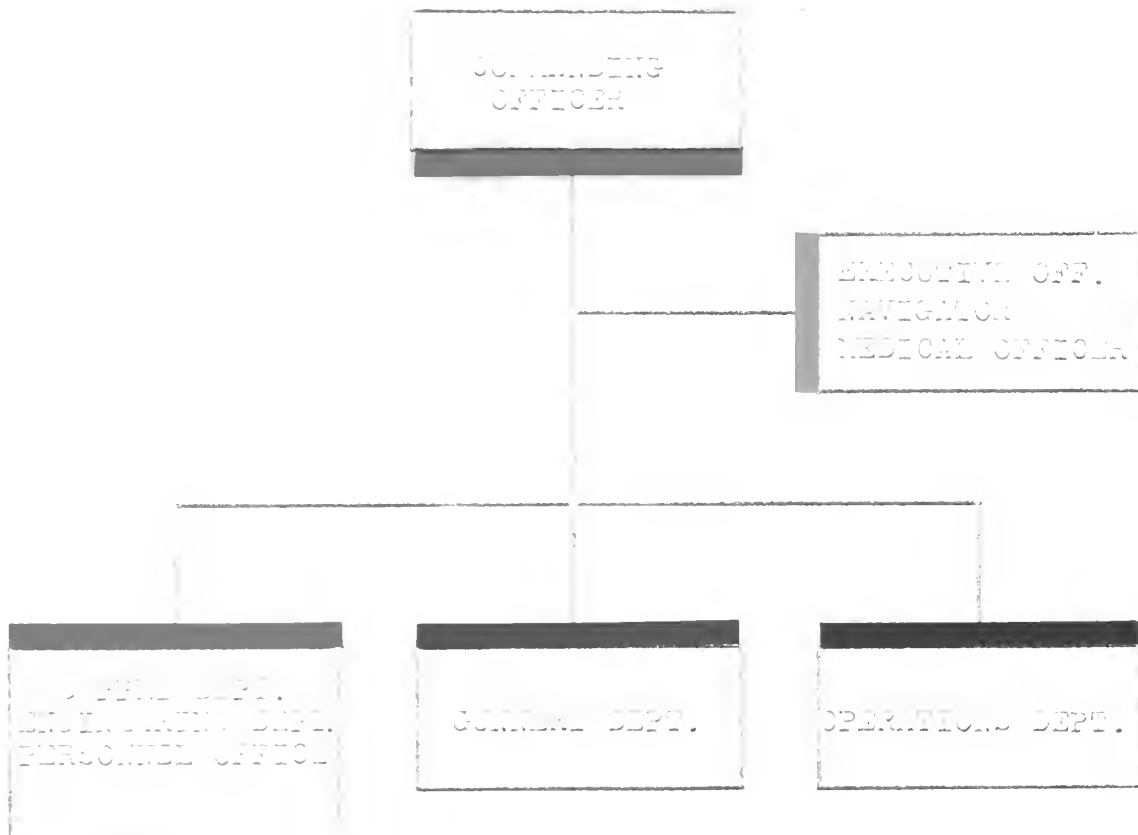


Fig. 4.--Functional Relationships of a Purely Military Organization--A General Purpose Destroyer





charges; therefore, the ACTION function is properly placed in the Gunnery Department. The DECISION function unquestionably lies with the Commanding Officer. The STAFF function is normally performed by the Executive Officer, Navigator, Medical Officer, and others who provide advice and technical expertise to the Commanding Officer. The INFORMATION function rests primarily with the Operations Department with its Combat Information Center and sensors, such as Sonar, Radar, and Radio, for gathering and evaluating data. The SUPPORT function is performed by the Supply Department, Engineering Department, Personnel Office, and others.

It should be emphasized that a ship's organization is not normally shown in this manner; yet it may be so arranged by logical interpretation of the responsibilities of its elements. Such an arrangement facilitates the delineation of duties, responsibilities, and authorities. Similarly, any organization may be so structured to clarify and simplify its functional divisions.

This basic structuring method is potentially one of the most important elements in streamlining organizational structures. This is a starting point--a way in which to draw together the diverse elements of even the most complex organization. By this simple device the purposes of any organization may be examined and the different units put in proper perspective. While it is true that a large organization structured by this method can become quite complex, it has, at least, the five INTRINSIC



FUNCTIONS throughout; these serve to tie together the lesser functions and the divisions into workable, understandable relationships. Each different organization which is structured will have a different functional diagram because of the diverse objectives and goals. They will all have in common, however, the five INTRINSIC FUNCTIONS. These are the basis for creation of order. Levitt has said:

A company cannot function as an anarchy. It must be organized, it must be routinized, it must be planned in some way in the various stages of its operations.<sup>1</sup>

In an attempt to overcome the difficulties of poorly organized units, businesses sometimes organize "Independent Subsidiaries" or "Autonomous Divisions" to accomplish functions for which their existing organizations do not seem to be appropriate. Governmental organizations, similarly, tend to organize "Task Forces" or "Special Project Offices" to accomplish important tasks which seemingly cannot be handled by the existing organizations. These, however, are not really workable solutions to the basic problem; they are admissions that existing organizations are too unwieldy to do the job effectively. They not only do not correct the basic organizational ills, but they may actually add to the organizational problems, since a proliferation of "special" units eventually reduces all to a "routine" category.

There is, however, one important development that should be considered when structuring organizations. This is the

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<sup>1</sup>Levitt, Harvard Business Review, May-June, 1963, p. 82.



rapidly developing practice of using "Program Managers" or "Project Managers" to handle specific projects which, because of their cost, complexity, or importance, require special management attention over and above that which would normally be given. These projects usually require the close attention of a number of different elements in an organization and their execution requires the cutting across of normally established organization bounds.

Many of these Project Managers are located in existing organization structures at the Staff level, even though their functioning is not that of a normal staff. The primary purpose of such location seems to be so that "the boss can know what is going on at all times," or to give added status so that there can be no question about the importance of the project. Such location in the organization structure places the Project Manager outside of his normal operating environment and violates the proper advisory functioning of staff elements. This location may actually detract from the effectiveness of the Project Manager because it removes him from the line organization where the work is performed.

Project Manager elements are important to an organization and they can operate effectively if given a proper location in a good organization structure. They are, by definition, ACTION functions and should be located in the ACTION portion of the organization. There they are no less accessible to the top managers and may actually be better placed to work with the operating elements of the organization. They will



receive there the full line emphasis; also they have access to all of the line relationships that are normally denied to the staff. The position in the operating ACTION element seems to be a logical location for these special elements and should be used instead of the Staff location.

Thus, structuring an organization is a combination of logic and the application of orderly policies, procedures, and routines. Use of the five INTRINSIC FUNCTIONS can be most useful to organization structuring and can form an important basis for good planning. The use of these INTRINSIC FUNCTIONS is the basis for this paper; they will be considered whenever an organization is formed or modified, and it is their use which provides the guidelines for streamlining organization structures.





## CHAPTER V

### LINE AND STAFF

One of the most overworked and overemphasized restraints placed upon management theory is that of the "Line vs. Staff Relationship." To this writer the line/staff concept appears to be a largely artificial and unnecessary problem of organization. If kept in the proper perspective, as described in Chapter IV, the line/staff relationship should introduce no problems.

It is generally conceded that the line commands and the staff advises. This is true, but it is also true that the line advises and the staff commands. Line command extends only to subordinate line units and does not include units under other line managers at the same level. Similarly, a staff unit is commanded by its staff executive in the same limited fashion. Thus the belief that the hard and fast rule of line command and staff advice must hold in every case is both faulty and superficial.

In a proper organization structure the line/staff relationship must be specified and the degree of their specialization in their functions must be made quite clear. In the simple structure of Figure 1 the INTRINSIC FUNCTIONS may be identified as "basically line" or "basically staff." In this structure, as in most properly designed structures, the STAFF



function is intended to be only an advisory one. It should be noted that it is normally a very small element--a few individuals who are specialists in fields required by the top manager. If it were necessary to have a large staff organization wherein the staff commander would exercise line-type command responsibilities in his staff element, it would be more effective to locate the unit in a true line category--in either the ACTION function, the INFORMATION function, or the SUPPORT function.

The line elements of Figure 1 are readily identifiable as true line units in the structure, but they are, in truth, staff units as well, since they also act in an advisory capacity. This may be, in fact, one of their most important duties--to advise the DECISION element on matters related to their individual functions.

To complicate the confused picture of line/staff theory, it should be noted that most staff officials can and do exercise command functions over the line authorities. While this is strictly forbidden in most theoretical concepts of line/staff relationships, it is acknowledged that the delegated power from the top official to his staff may be expressed or may only be implied. Yet through this device the staff exercises command over line functions. Similarly, line elements do in actuality exercise command over other line elements which are not in their own subordinate line- or chain-of-command. Here again it is the implied delegation of authority in specific cases from the top executive that rests with the line commander. In both instances



an informal organization results in staff and line assumption of formally denied authority. This gets the job done in the most expeditious manner--why not recognize it as a formal means of exercising authority and do away with the old outdated line/staff concepts?

To keep the basic understanding of line and staff is still useful, however, as Koontz and O'Donnell point out:

The distinction seems important, however, as a way of organizational life. The superior and the subordinate alike must know whether he is acting in a staff or a line capacity. If acting in a staff relationship, one must realize that his job is to advise and not command, that his task is to sell and not tell, and that his line superior must assume the responsibility for making the decisions and issuing the instructions through the scalar chain below him.<sup>1</sup>

In most discussions of line/staff relationships, it is indicated that these terms and concepts were originally received from the military. The military command line and the military staff were clear and distinct relationships. Even this, however, has changed. Many military organizations have large staffs which have outgrown their nominal staff functions and might better be given a line status. They would still be called upon as advisors to the top executive but their true line operating function would be better recognized. As an example, when the functions of Supply (or Intelligence, Personnel, etc.) become so large that the Staff Officer responsible must himself develop a large organization to perform them, it is no longer properly just an advisory STAFF function, but an operating line element of the

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<sup>1</sup>Koontz and O'Donnell, p. 141.



organization.

Many businesses today, as well as many military and governmental organizations, have failed to keep up with the times in this important staff/line concept. Their staffs have become large and unwieldy; they take up more time of the chief executive than do his primary relationships with his line executives. As a case in point, the Controller in many organizations is a nominal staff function. Yet the Controller function embodies not only the treasurer and accounting elements, but also the planning and control elements that have become so important in both business and government. He, as the central coordinating executive for financial planning and financial controls, can provide information to all elements which will greatly assist their planning and controlling. The Controller should be recognized as the line executive he is and should be placed under the INFORMATION function where he and his organization belong.

This fact, that the Controller can best serve the whole organization as an operating line executive, rather than as an advisory STAFF function to the top executive, has been recognized by a number of modern theorists. Mr. Brink, for example, says:

The controller is not, as might be literally implied from his title, the one who controls. Rather, he provides the analysis which assists management at all levels to manage most efficiently and, in addition, he participates as a member of management in the actual management action program.<sup>1</sup>

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<sup>1</sup>Victor Z. Brink, "The Controller's Management Role," The Controller, September, 1960, p. 451.





In a discussion of the need for effective communications between the Controller (the measurer of organizational performance) and the rest of the working organization (the doers of the organization), Mr. Douglas Hamilton points up the need for a closer relationship than would exist between a purely staff element and one in the line:

Business has become too complicated for such a lack of communication to exist between those who do and those who measure. Management must have balanced evaluation of results; the doers need the perspective, objectivity, and techniques of the measurers; measurers must understand the physical problems being met in order to design and maintain measurement assistance which will meet the needs of management and the doers. This forces a closer relationship.<sup>1</sup>

Mr. Hamilton speaks up for the need for a good Controller to be at an operating level which allows him free access to all elements of the organization--a relationship which may be denied to him if his is strictly a STAFF function.

The controller's responsibility crosses all lines of the business. There is no area, therefore, into which his aggressive curiosity may not properly lead him.<sup>2</sup>

Above all, the line/staff relationship bugaboo should be forgotten as a problem. The staff personnel should function primarily as personal advisors to the DECISION function and the line elements, including the Controller, should give primary attention to those line operating functions for which they exist.

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<sup>1</sup>Douglas L. Hamilton, "The Changing Role of the Controller," The Journal of Accountancy, January, 1960, p. 53.

<sup>2</sup>Ibid., p. 53.



PART II

APPLICATION OF CONCEPTS TO THE  
U.S. NAVY BUREAU OF SHIPS



## CHAPTER VI

### RESTRUCTURING ORGANIZATIONS

Is there any need for restructuring modern military organizations? Most members of those organizations will reply, "No," and will cite effective performance in the past as justification for continuing with the present structures. Their natural resistance to change will possibly override all arguments for changing present structures. One modern writer, however, Professor Suojanen, formerly of the School of Business Administration, University of California, who has had some nineteen years of military service, thinks that major realignment is necessary to meet the demands of modern warfare. He says:

How do we reconcile the fact that the military has succeeded in developing an executive organization for tactical (action) situations but so far has not yet been able to structure itself for the administrative requirements of modern warfare? The more one analyzes the question, the more one is impressed by the failure of our military departments to establish a philosophy and structure adequate for a military posture of watching and waiting.<sup>1</sup>

In Part I have been set forth what are considered to be useful portions of the theories, concepts, and principles on structuring organizations. From these have been distilled a few basic guidelines for simplifying and streamlining the structure of any organization; and examples have been shown of the

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<sup>1</sup>Waino W. Suojanen, "Is Military Organization Really Better?," Advanced Management, September, 1958, p. 10.



application of these guidelines to simple organizations, both military and civilian. If the principles are valid and if the guidelines may be used to establish a sound structure for any organization, new or old, they must be applicable to a large, complex organization. It must be shown whether these principles can be applied to existing large organizations to modify, simplify, and streamline the organization for better management and for more effective, efficient organizations which will help their personnel to do their jobs better.

The writer has selected as a typical large military/civil service organization--the United States Navy Bureau of Ships, located in Washington, D.C. The question of the ability of any analyst to cover adequately an organization of this size may be raised. How well does he know the organization? How intimately is he associated with the personnel, the policies, the politics, and the background that led to the present organizational structure? What are the prejudices and biases of the analyst?

In this case the writer is not in the basic organization to be examined; he has not served in that organization in the past; and he is relatively unaware of the personality/political implications involved. He has no pre-formed biases except that this is a typical large, complex organization with many of the problems that are a part of any such complex structure. The lack of personal knowledge is believed to be an advantage, since it allows a detached, "ivory tower" look at the structure, and a comparison of actual structure with management concepts which relate to good structure. No attempt will be made to consider





personalities, although it is recognized that they must be taken into account when modifying or restructuring any organization. As pointed out in Chapter III, in structuring an organization, the proper structure by functions should be set as the ideal and minor adjustments to accommodate personnel then made for maximum utilization. It should be kept in mind that the restructuring proposed here is only conceptual. It is not precise or exact, since more detailed knowledge of the present organization would be required for precise descriptions of structure modifications. Since this is a conceptual approach--intended to show the applicability of restructuring concepts to an organization--it is based only on apparent factors; further study may reveal other factors which would change the applications somewhat.



## CHAPTER VII

### MISSION, FUNCTIONS, AND RESPONSIBILITIES OF THE BUREAU OF SHIPS

The Bureau of Ships was formed in 1940 by Public Law 644, 76th Congress. This law consolidated into a single bureau the Bureau of Construction and Repair and the Bureau of Engineering, both of which go back to the beginning of the bureau system in 1842, when the Bureau of Construction, Equipment, and Repair was created.

The Bureau of Ships is responsible for, among other things:

1. The design, procurement, construction, repair, and research pertaining thereto of vessels, amphibious craft and vehicles, boats, surface targets, barges, and service craft of the Navy, including all related matters not assigned to other bureaus or offices, and excluding service craft assigned for control to the Bureau of Yards and Docks.<sup>1</sup>

The core of the Bureau's mission is the design, construction, and maintenance of the ships of the Fleet, and the present organization is a functional one which reflects the departmentation necessary for accomplishment of the mission and related assignments. The Administrative Manual sets forth the

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<sup>1</sup>U.S., Department of the Navy, Navy Regulations (Washington, D.C.: Government Printing Office, 1948), Chapter 4, Section 0445.



## basic structuring concepts:

1. The organizational structure of the Bureau as reflected in this Manual is grouped primarily on the basis of functions performed to reflect and facilitate the accomplishment of our mission. This mission, broadly speaking, is to design, procure, construct, repair, and do research pertaining to ships of the Navy. Function is used as the basic principle of organization, rather than product, since the Bureau's operations are fundamentally concerned with the application of engineering and technical knowledge.

3. The Bureau of Ships is organized in eight functional areas under the direction of six Assistant Chiefs, a Director of Contracts, and a Comptroller. The Chief of the Bureau delegates to each Assistant Chief, to the Director of Contracts, and to the Comptroller full authority and responsibility for the work of his assigned functional area, subject only to their discretion with respect to questions which they should submit to the Chief or Deputy Chief of the Bureau for decision or further instructions.<sup>1</sup>

The present functional assignments of the Bureau are as follows:

### STAFF:

Assistant Chief of Bureau for Plans and Administration, Code 200.

Administrative support of Bureau headquarters.

Director of Contracts, Code 1700.

Contracting for the purchase of ships, equipment, and services.

Comptroller, Code 2700.

Developing, coordinating, and administering the Bureau's overall financial management program.

Special Staff Assistants, Codes 103, 104, 108, 109, 110, 120, 150, 170, 199.

Assistance and advice on specific matters.

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<sup>1</sup>U.S., Department of the Navy, Administrative Manual of The Bureau of Ships (Washington, D.C.: Bureau of Ships, 1963), Foreword, p. 1.



LINE OR OPERATING:

Assistant Chief of Bureau for Research and Development, Code 300.

Establishment and administration of the Bureau's overall  
Research, Development, Test and Evaluation Program.

Assistant Chief of Bureau for Design, Shipbuilding, and Fleet  
Maintenance, Code 400.

Producing the overall ship design from which a new ship  
is built or an existing ship is modified.

Administering the shipbuilding and ship maintenance  
programs and coordinating the technical aspects of  
ship construction and maintenance.

Assistant Chief of Bureau for Technical Logistics, Code 600.

Engineering, development and design, production, and  
maintenance of the components, equipments, and  
equipment systems installed in naval ships or which  
are used in shipbuilding or Fleet support.

Logistic support of these components, equipments, and  
equipment systems.

Assistant Chief of Bureau for Field Activities and Inspector  
General, Code 700.

General management control of the Bureau's field  
activities.

Review and appraisal of the organization and operation  
of the entire Bureau.

Assistant Chief of Bureau for Nuclear Propulsion, Code 1500.

Development, design, procurement, production,  
installation, testing, and operational evaluation





of new type nuclear propulsion plants and the engineering, procurement, installation, alteration, and maintenance of shipboard nuclear reactor plants.

These functions are shown as presently structured on the block diagram of Figure 5. There are at present some 3200 civilians and 220 military officers assigned to the Bureau of Ships.

The Bureau of Ships has the reputation of being a conservative, slow-to-react organization. Its defenders point with pride to the past performance in producing and maintaining an excellent array of modern, well designed and constructed, and well equipped ships for the world's finest Navy. Its critics agree that the end products are generally good, but they question the seemingly excessive effort involved--the time, cost, and manpower required, and the inability to adjust rapidly to changing conditions. Perhaps there is some truth in both viewpoints. If so, some of the blame may be laid to the complexity of the structure of the Bureau and to the diffuse relationships which exist. If this is true, then it should be possible to simplify and make more straightforward the Bureau's operating relationships. There is, in the use of the INTRINSIC FUNCTIONS, a method for restructuring for the purpose of making the relationships as simple as possible, and, in the process, realizing more effective use of the manpower of the Bureau of Ships. Perhaps this is oversimplification. If it is, then it is so because oversimplification is considered to be preferable to increasing complexity and confusion.



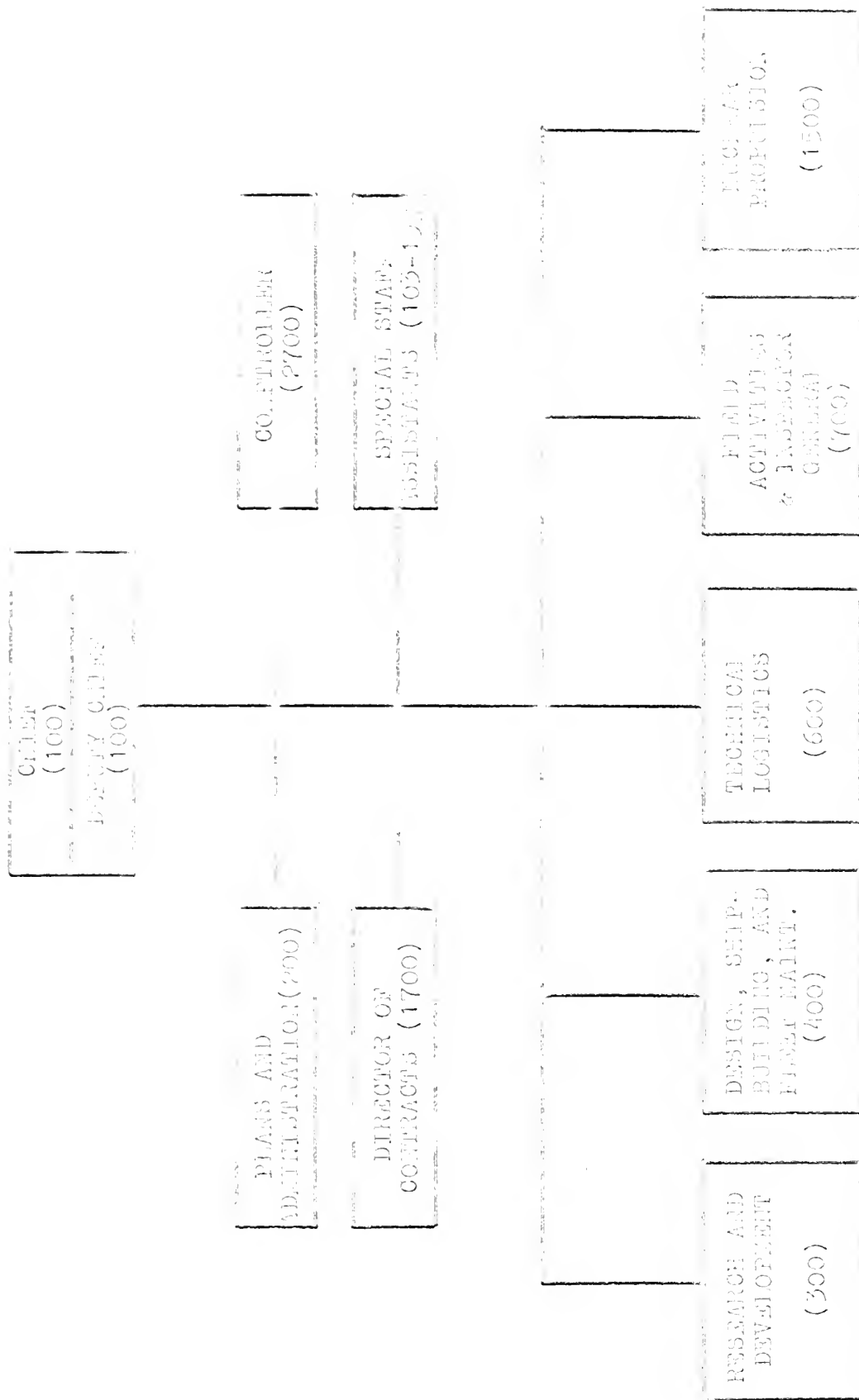


Fig. 5.--Present Structure of the Bureau of Ships.



First, an examination of the true mission of the Bureau is in order. Probably the most important responsibility of the Bureau of Ships is that of design--the design of ships and their components for the Navy. Closely related are the planning for building, modifying, and maintaining the Navy's ships, and the directing of research and development work. Finally, the Bureau must procure the new ships and the components and equipments required.

No mention has been made of the two important functions of construction and repair of the Navy's ships. The Bureau of Ships, as such, does not construct or repair ships. It does, however, plan for and control such work; through its field activities and commercial concerns it manages and directs the construction and repair work. Therefore, the Bureau has as one of its major responsibilities the management control of the construction and repair of the ships of the Navy.

The mission of the Bureau of Ships, then, encompasses the following functions:

1. Planning for building, modifying, and maintaining the ships and craft of the Navy.
2. Designing ships and their components and equipments.
3. Directing RDT&E related to Navy ships and equipments.
4. Procurement of ships, components, and equipments.



5. Managing the construction and repair of the Navy's ships.

The Dillon Report of 1962 provided a comprehensive review of the management processes and structures of the Department of the Navy. Among other things, it made recommendations for the modification of the structure of the Navy Department to include a Chief of Naval Support to supervise the work of the four material bureaus, including the Bureau of Ships. These recommendations, however, would not materially alter the character of the Bureau of Ships. The Report says:

The Bureau of Ships should be the primary technical bureau of the Navy and of the Naval Support Establishment concerned with ships and related equipment.<sup>1</sup>

It recommends the reassignment of certain functions and missions among the bureaus, but nothing which would seriously affect the structure or missions stated above. There would be some modifications to the present structure as a result of the Dillon Report recommendations, and these must be taken into account when discussing further structural changes. In speaking of the recommended modifications, the Report says:

The resultant streamlining of the structure and staff of the Bureau of Ships will permit the undivided attention of its Chief toward providing leadership and direction to the effective performance of his specialized technical functions of research, development and design, procurement, production, and maintenance of ships and related equipment

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<sup>1</sup>U.S., Department of the Navy, Review of Management of the Department of the Navy, NAVEXOS F-2426A (Washington, D.C.: Department of the Navy, 1962), p. 146.





in accomplishment of projects assigned to him by the Chief of Naval Support.<sup>1</sup>

All of the foregoing leads to the indication that restructuring of the Bureau of Ships could be helpful. This writer believes that the restructuring should go beyond the recommendations of the Dillon Report, and that the internal structure of the Bureau should be altered to place in proper perspective the missions and functions assigned.

In proposing a new structure of organization for the Bureau of Ships, the INTRINSIC FUNCTIONS approach will be used. This provides the following breakdown of missions and functions:

DECISION FUNCTION

Chief of the Bureau

Deputy Chief of the Bureau

STAFF FUNCTION

Special Advisory Assistants

ACTION FUNCTION

Design

Management of Shipbuilding and Repair

INFORMATION FUNCTION

Research and Development

Planning and Budgeting

Controlling

Inspection

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<sup>1</sup>Ibid., p. 147.



ASSISTANCE FUNCTION

Procurement

Logistics

Administration

These INTRINSIC FUNCTIONS and their related elements in the present Bureau of Ships organization are shown diagrammatically in Figure 6. Each one of the elements will be examined individually.





Fig. 6. Organization of Bureau of Ships Function by Intrinsite Function.

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## CHAPTER VIII

### THE CHIEF OF THE BUREAU

The Chief of the Bureau of Ships is the chief executive of that Bureau, with full authority and responsibility for execution of the duties assigned. He is, under present directives, responsible to the Secretary of the Navy for the execution of the duties and responsibilities assigned to BUSHIPS by Chapter 4 of U.S. Navy Regulations, and such other responsibilities as are assigned by the Secretary of the Navy, or delegated by the Chief of Naval Operations and other competent authority; future responsibility will be to the Chief of Naval Support (Chief of Naval Material) as recommended by the Dillon Report.

In addition to the direct supervision of the functional line and staff elements shown on Figure 5, the Chief of the Bureau of Ships has a large personal staff to assist him in his duties. The total office of the Chief consists of approximately eleven officers, thirty professional and technical civilians, and twenty-five clerical, secretarial, and support personnel. The special staff assistants to the Chief of the Bureau are:

Special Assistant for Surface Missile Ships,

Code 103.

Special Assistant and Administrative Aide, Code 104.





Supervisor of Salvage, Code 108.

Small Business Specialist, Code 109.

Assistant for Legislation and Special Matters,  
Code 110.

Office of Military Personnel, Code 120.

Office of Counsel, Code 150.

Office of Patent Counsel, Code 170.

Watch Officer, Code 199.

These nine subordinates, plus the Deputy Chief and heads of the eight functional elements of the Bureau organization, give to the Chief of BUSHIPS a total of eighteen subordinates over whom he must exercise direct control. This span-of-control is considered to be too great for effective management, as discussed in connection with the span-of-control concepts of Sir Ian Hamilton, in Chapter II. Hamilton's conclusions were that a span of three subordinates would keep an executive fairly busy, while six would require about a ten-hour day. His principle recommends that:

The nearer we approach the supreme head of the whole organization, the more we ought to work towards groups of three; the closer we get to the foot of the whole organization, the more we work towards groups of six.<sup>1</sup>

Quite the reverse is true in the Bureau of Ships, where the Bureau Chief has eighteen subordinates and some Division Chiefs have only two. While Hamilton's conclusions may be slightly in error in the light of modern management techniques

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<sup>1</sup>Hamilton, p. 230.



and procedures, the basic idea that an executive should not be "spread too thin" is still valid. More recent theorists have researched the problem of span-of-management in the modern business world, with somewhat the same general conclusions.

The American Management Association surveyed 141 companies to obtain information about actual industrial spans. . . . Data were obtained from 100 large concerns (over 5,000 employees) and forty-one medium-sized firms (500 to 5,000 employees). . . . The median for the 100 large organizations surveyed was between eight and nine; for the forty-one medium-sized concerns, between six and seven.

The data on actual spans warn against any dogmatic conclusion as to numbers. There is no general rule that can be used to determine the proper span for particular situations. Spans should probably be smaller at higher levels than at the first-line supervisory level.<sup>1</sup>

The conclusion is inescapable that the Chief of BUSHIPS is attempting to operate with a span-of-management which is too great for the top executive level of an organization. It might be that the operation of this level of the Bureau is not as described in the formal organization; perhaps an informal organization has developed to solve the problem. In either event, for maximum effectiveness, changes should be made to reduce the total span-of-management and/or to show in the formal organization the manner in which the organization actually performs.

The first steps toward reducing the Chief's span-of-management are to examine the functions of the Special Assistants and others on his present staff. It appears that some of these are not true STAFF officers, in the sense of the discussions of

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<sup>1</sup>Albers, p. 72.



Chapter IV. Some appear to have purely coordination and liaison assignments that might better appear in other parts of the organization. A close examination of each is necessary to determine its true function and proper location in the structure.

Special Assistant for Surface Missile Ships, Code 103.

This assistant functions principally as advisor on weapons development, installation, and test matters in connection with surface missile ships, and as a coordinator between the building program and the development program. While the function is an important advisory one, it probably should not be located at the top office of the organization, but should be a part of the staff of the more directly concerned Assistant Chief for Design, Shipbuilding, and Fleet Maintenance.

Special Assistant and Administrative Aide, Code 104.

This is a necessary administrative function for the chief executive and should be retained.

Supervisor of Salvage, Code 108.

This is largely an operating and supervisory function, rather than an advisory one. It should be located in the element which is closely associated with the Fleet and its work--the Assistant Chief for Design, Shipbuilding, and Fleet Maintenance.

Small Business Specialist, Code 109.

This is a planning, coordinating, and public relations function. It should be moved to the office of the Director of Contracts.



Assistant for Legislation and Special Matters, Code 110.

Since this is an important advisory and assistance function, related to the Chief's responsibilities for Congressional liaison and public information, it should be retained in his immediate office.

Office of Military Personnel, Code 120.

This is a purely administrative function; it should be moved to the office of the Assistant Chief for Plans and Administration.

Office of Counsel, Code 150; Patent Counsel, Code 170.

These are purely assistance functions, not only to the Chief, but to the other elements of the Bureau as well. Since their services are primarily administrative in nature, they should be relocated to the Assistant Chief for Plans and Administration.

Watch Officer, Code 199.

This officer functions as the representative of the Chief of the Bureau during non-working hours. The function should be retained as part of the Chief's office.

The present structure of the Bureau, shown on Figure 4, also treats the Assistant Chief for Plans and Administration, the Director of Contracts, and the Comptroller as STAFF units. These are not true STAFF functions, as set forth in Chapter IV, but are line or operating elements of the organization, with





responsibilities to other units of the Bureau as well as to the Chief. They should not be shown as STAFF elements, nor treated as such, but should be realigned as line operating units under the INTRINSIC FUNCTIONS, as shown in Figure 6.

The proposed arrangement of functions now appears as shown in Figure 7, and it can be seen that the span-of-management of the Chief has been reduced from eighteen to twelve. This number, while smaller than previously, is still somewhat high, and consideration should be given to inserting an additional layer of management to group all operating functions under three INTRINSIC FUNCTIONS. Such an arrangement, which reduces the Chief's span-of-management to seven, could be made as shown in Figure 8; however, it has the disadvantage of inserting an additional supervisory layer. The trade-off between additional layers of management and more effective span-of-management is one which must always be weighed. Further study of the other elements of the Bureau organization is necessary before this problem can be finally decided; however, it will be used tentatively as the structure of the Bureau is further modified and streamlined.

Before proceeding further some mention should be made of the Project Management concepts which are growing in popularity. As pointed out in Chapter IV, there is a definite need for Project Management for those special projects which meet certain criteria.



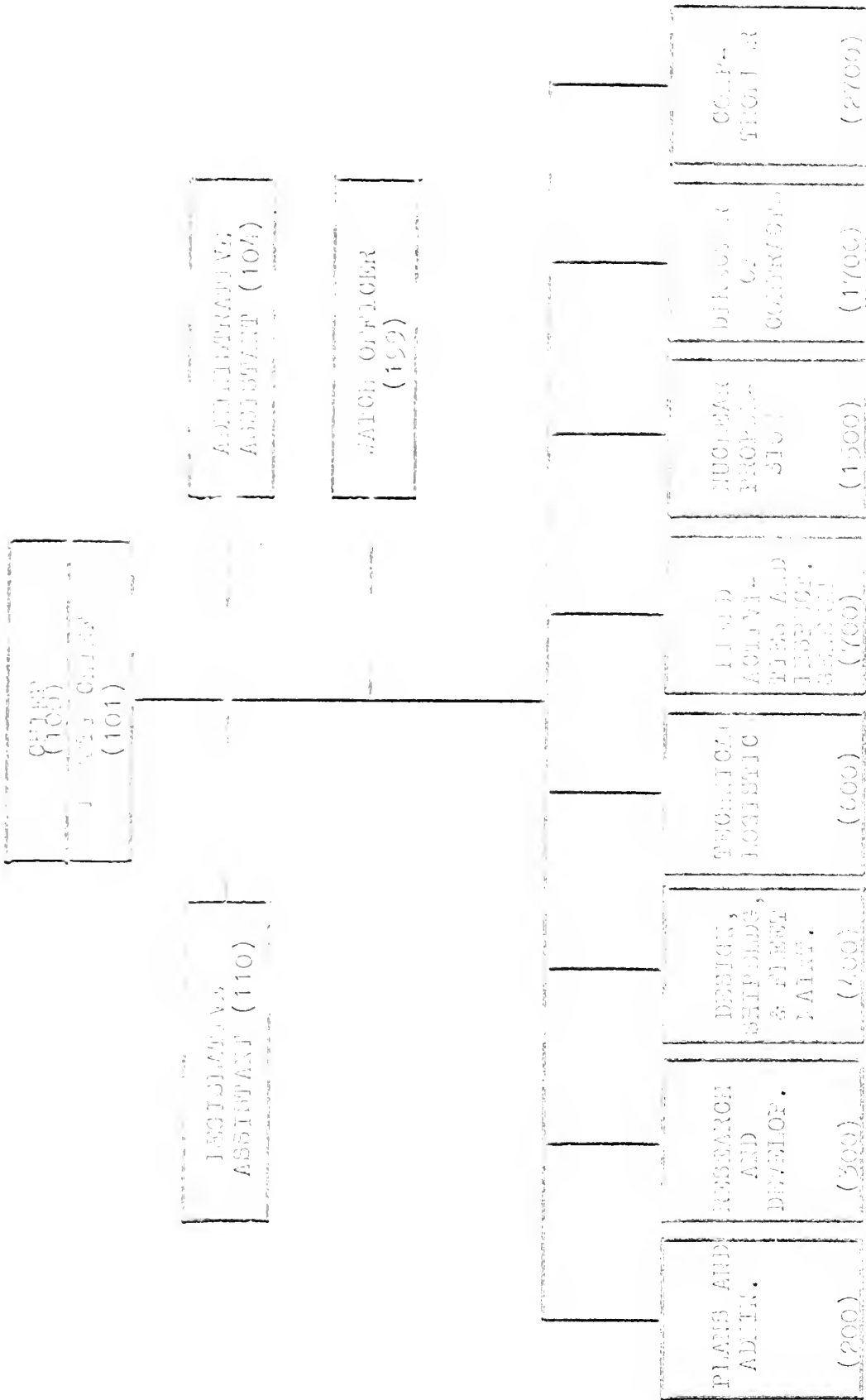


FIG. 7.—Possible Rearrangement of Functions of the Bureau of Shipbuilding



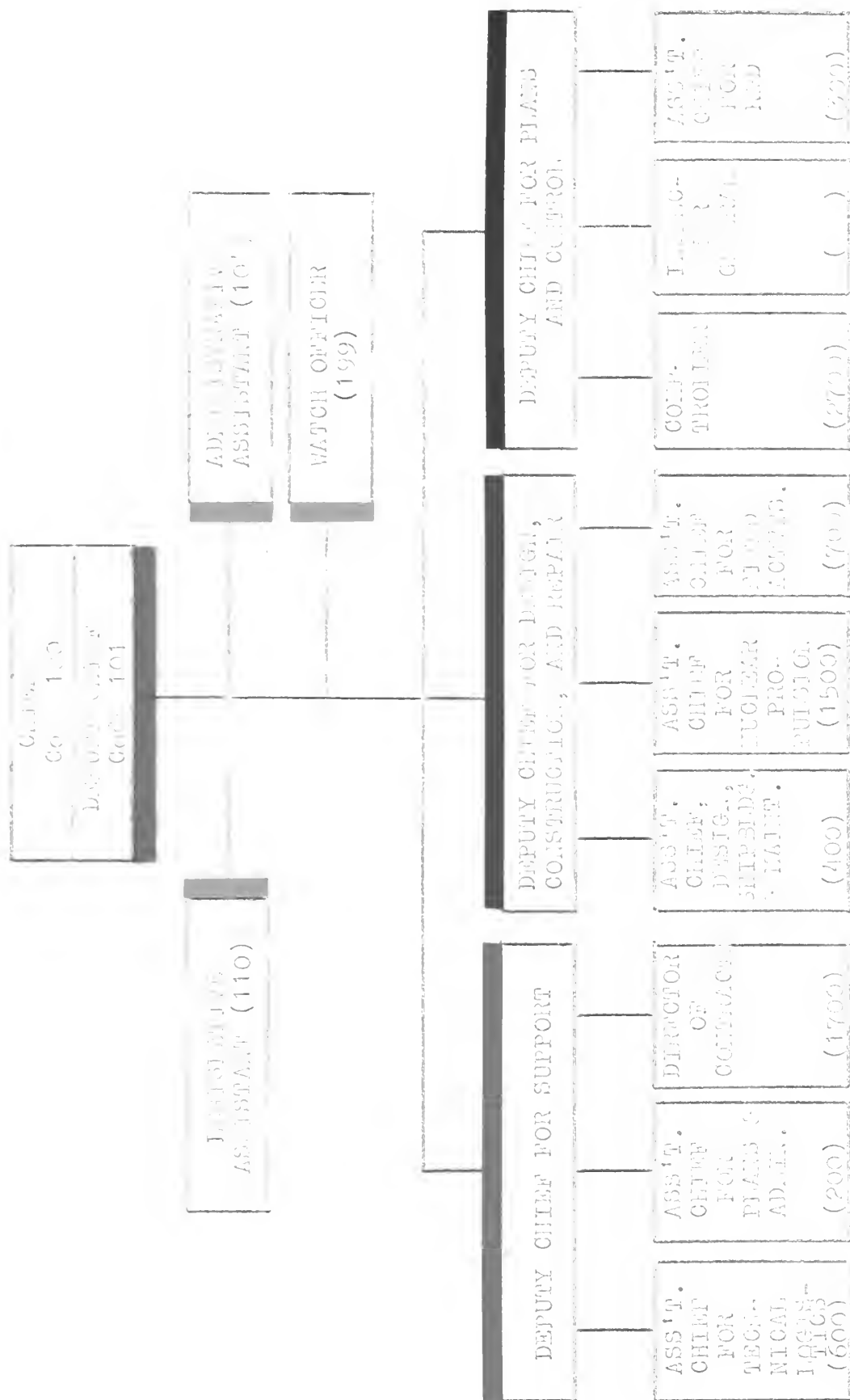


Fig. 8. Tentative Restructuring for the Bureau of Ship-

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The Dillon Report says:

The bureau organization, with its autonomous characteristics, is not readily adaptable to major-system project management when more than one bureau must be involved. Inter-bureau material management problems have sometimes led to incompatibility of companion equipments and late delivery of weapons and ships. . . . For each major weapons system in development and production, it is essential that there be one individual who can be held fully accountable to the Department's leaders for results.<sup>1</sup>

Later in the Report further clarification is added:

(b) Project Management. "Project Management" is intensified system management, intensified through both organizational means and procedural means. It will be the principal tool of the Chief of Naval Support for assuring effective systems management of major weapons systems and equipments. Organizationally, a single project manager would be appointed, responsible only to the Chief of Naval Support, and assisted by a full time staff. Physically, the project manager could be at either bureau level or at the Chief of Naval Support level. Within well-defined boundaries of time, resources, and performance requirements, the project manager would have complete authority over the conduct of his project. Special procedures would be installed to make this authority meaningful. Among these would be complete fund control and special reporting systems and other management tools.<sup>2</sup>

It goes without saying that, given the "full time staff," the "complete authority," and the "special procedures" mentioned in the above Report, almost any project manager could be effective, regardless of his position in the organization. The question is: How many such full time staffs, complete authorities, and special procedures can any organization support without doing harm to all other functions which must be

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<sup>1</sup>Review of Management of the Department of the Navy.  
NAVEXOS P-2426A, pp. 8 and 9.

<sup>2</sup>Ibid., p. 74.





performed? Without considerable thought, the Project Management technique can lead to greater difficulties for the entire organization.

There is, however, a method whereby the Project Management of a selected few important projects can be handled within the organization structure of Figure 8 without disrupting the effectiveness of the whole organization. This method is explained in Chapter IV; essentially it consists of removing the Project Managers from the STAFF position to which they are usually assigned and placing them in the appropriate ACTION functional element of the organization. Where of sufficient importance, a separate ACTION function may be created especially for the project. For Project Managers at higher levels, such as those at the Chief of Naval Support level, counterpart Sub-Project Managers in the supporting bureaus, located at the appropriate position in the organization, would be required. Thus almost every ACTION element would have provision for a Project Manager, to be activated when required. These Project Managers and Sub-Project Managers would be a part of the organization structure of the bureau in which they are located, but would have no other assignments than those concerned with their particular Projects.

As an example of how this would have functioned in past projects, consider fitting a Project POLARIS into the organization of Figure 8. Because of the size and importance of POLARIS, the Project Manager would probably be placed directly



under the ACTION function as an Assistant Chief for Project POLARIS. Within his basic organization he would have the required technical experts, design and planning specialists, and others required for planning, management, and control of the Project. Within other elements of the Bureau, and of other Bureaus, would be established Sub-Project Managers: Sub-Project Manager for POLARIS Communications, under Code 300; POLARIS Technical Logistics Sub-Project Manager, under Code 600; and similar components wherever required. It should be emphasized that such relationships use the existing organizational structures (but not people) and so create no major rearrangement problems. Once the procedure is established, additional Project Offices can be rapidly established (or disestablished) as required in the same manner, in the same structure locations, using the same administrative processes, and sometimes using the same people who have gained experience from previous projects. Thus there is established the capability for using the Project Management concept as a complement to the existing organization, not as a major distraction from the effectiveness of the established organization. This is important, since one recommendation of the Dillon Report says:

Recommendation No. 27--That the Secretary of the Navy direct the Chief of Naval Support to apply project management to selected systems and equipment projects.<sup>1</sup>

If this recommendation is implemented, as appears likely, the Bureau of Ships will be faced with the necessity of providing

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<sup>1</sup>Ibid., p. 77.



a systematic approach to establishing Project Management without completely disrupting the overall organization. It can be done effectively and efficiently with proper attention to organization structure.



## CHAPTER IX

### ASSISTANT CHIEF FOR PLANS AND ADMINISTRATION

The mission of the Assistant Chief for Plans and Administration is to ensure the administrative support of Bureau headquarters and to provide other management assistance to the Bureau as assigned. The organization consists of approximately two officers and 485 civilians, of whom about fifty are technicians, professionals, engineers, and scientists; and about 435 are administrative, clerical, secretarial, and support staff.

Responsibilities include: preparing and coordinating the preparation of emergency plans for Bureau headquarters; exercising supervision of the Bureau's security program and providing policy advice and assistance on security programs at field activities; administering the Bureau's support programs, such as the library, publications, data processing, etc.; and administering the Bureau's civilian personnel programs.

The present organization diagram to the Division level is shown in Figure 9.

In restructuring this organization, consideration should be given to just what its principal functions are. Since the mission of this organizational element is to ensure administrative support, there is little doubt that it has an overall SUPPORT mission to the whole organization. Within this





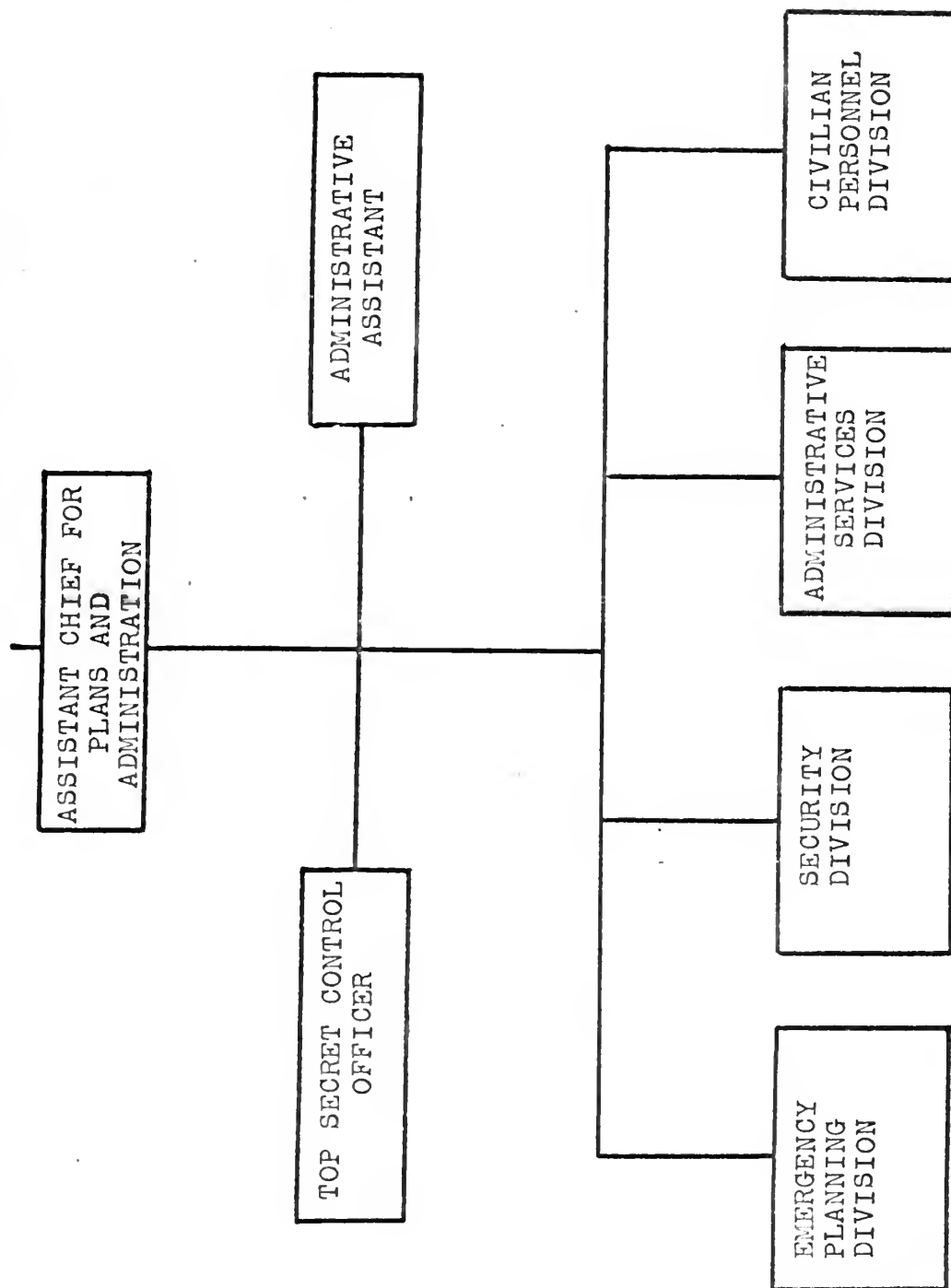


Fig. 9.--Present Organization of the Assistant Chief for Plans and Administration.



SUPPORT element, the principal support is that of providing personnel and services to the Bureau; therefore, the Administrative Services Division, the Civilian Personnel Division, and the Military Personnel Division (relocated from the staff of the Chief of the Bureau) become the ACTION functions to the Assistant Chief for Plans and Administration. Supporting these as the SUPPORT functions of the Assistant Chief are the Security Division and the Legal Division (which, as Office of Counsel, Code 150, and Office of Patent Counsel, Code 170, was previously located in the office of the Chief of the Bureau as a staff function, but which is more logically placed in the line for operating support to the whole Bureau). The Emergency Planning Division, because of its planning functions, then becomes an INFORMATION function to the Assistant Chief.

The advisory STAFF functions to the Assistant Chief for Plans and Administration should be rearranged somewhat. The Administrative Assistant remains as a STAFF function, but the Top Secret Control Officer and Registered Publications Custodian are more logically located in the Security Division, where related security functions are performed and where the service is provided to the whole Bureau, rather than simply STAFF advisory service to the Assistant Chief.

The proposed new structure is shown in Figure 10. It can be seen that the INTRINSIC FUNCTIONS are represented properly and that each organizational element is clear and distinct in both its function and its responsibilities. The span-of-management is good and all of the responsibilities of this

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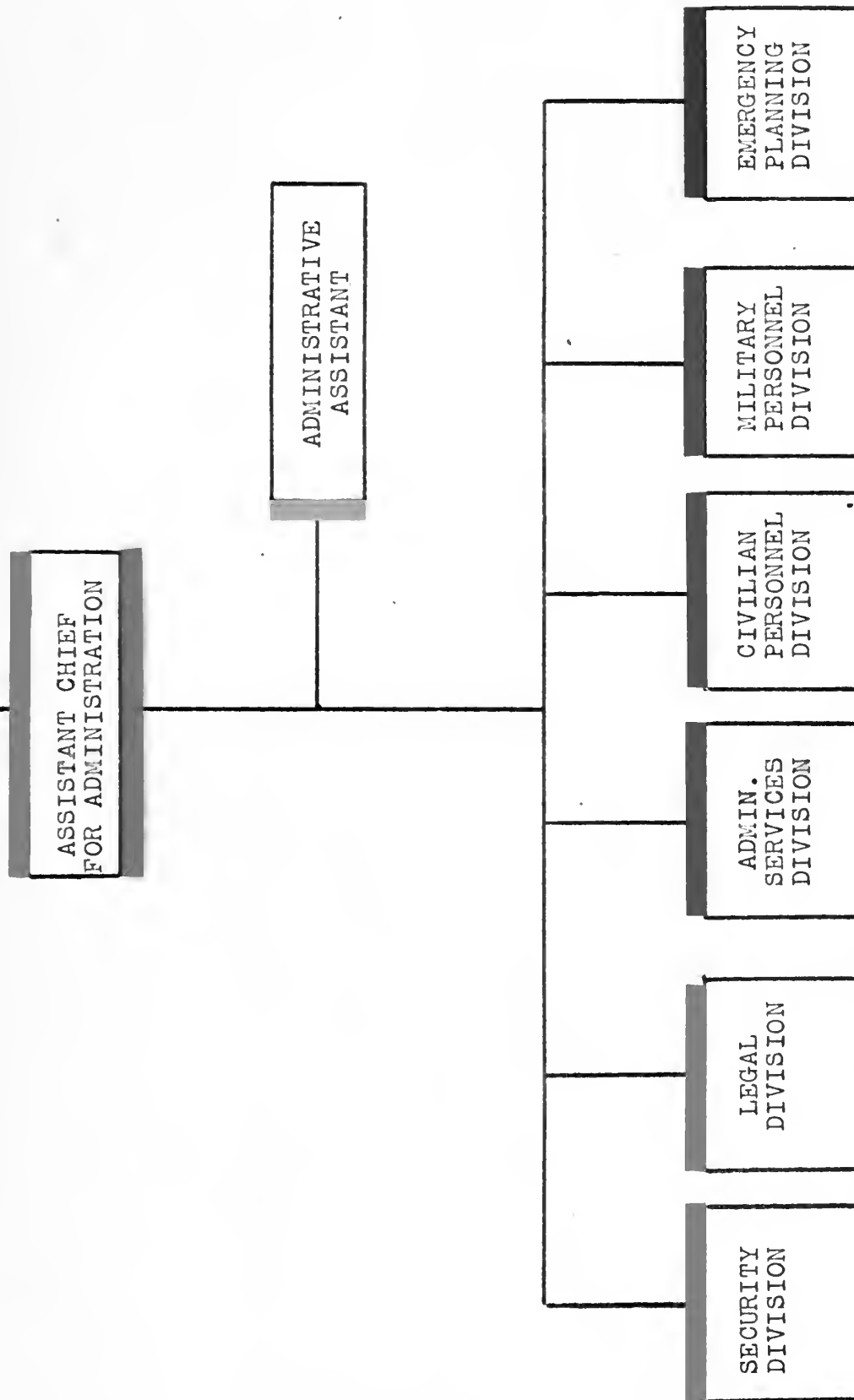


Fig. 10.--Restructured Organization for the Assistant Chief for Administration.

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organizational element are represented.

One other minor change is necessary to make the titles truly representative. The Assistant Chief for Plans and Administration is changed to Assistant Chief for Administration, because the Plans function is only a limited one of planning for mobilization and for emergencies, not a true Bureau Planning function in the commonly accepted sense, but an administrative one with limited scope.





## CHAPTER X

### ASSISTANT CHIEF FOR RESEARCH AND DEVELOPMENT

The mission of the Assistant Chief for Research and Development is to ensure that the Bureau conducts a Research, Development, Test, and Evaluation program which is appropriate to and properly supports the mission of the Bureau. The organization consists of approximately twenty-five officers and ninety-five civilians, of whom about sixty are professionals and engineers or scientists, while about thirty-five are clerical, administrative, and support staff.

Responsibilities include planning and coordinating the Bureau's RDT&E program; acting as the focal point in the Bureau for receipt, review, and distribution of information and documents relating to RDT&E program and budget formulation; establishing fields of endeavor and managing program aspects of BUSHIPS laboratories; and coordinating RDT&E programs with industry, other services, and other offices and bureaus.

The present organization diagram to the Division level of Code 300 is shown in Figure 11.

While it may be argued that the Research, Development, Test, and Evaluation functions are mainly support to the primary functions of the Bureau, it is more accurate to consider the RDT&E functions as informational in nature, since they supply



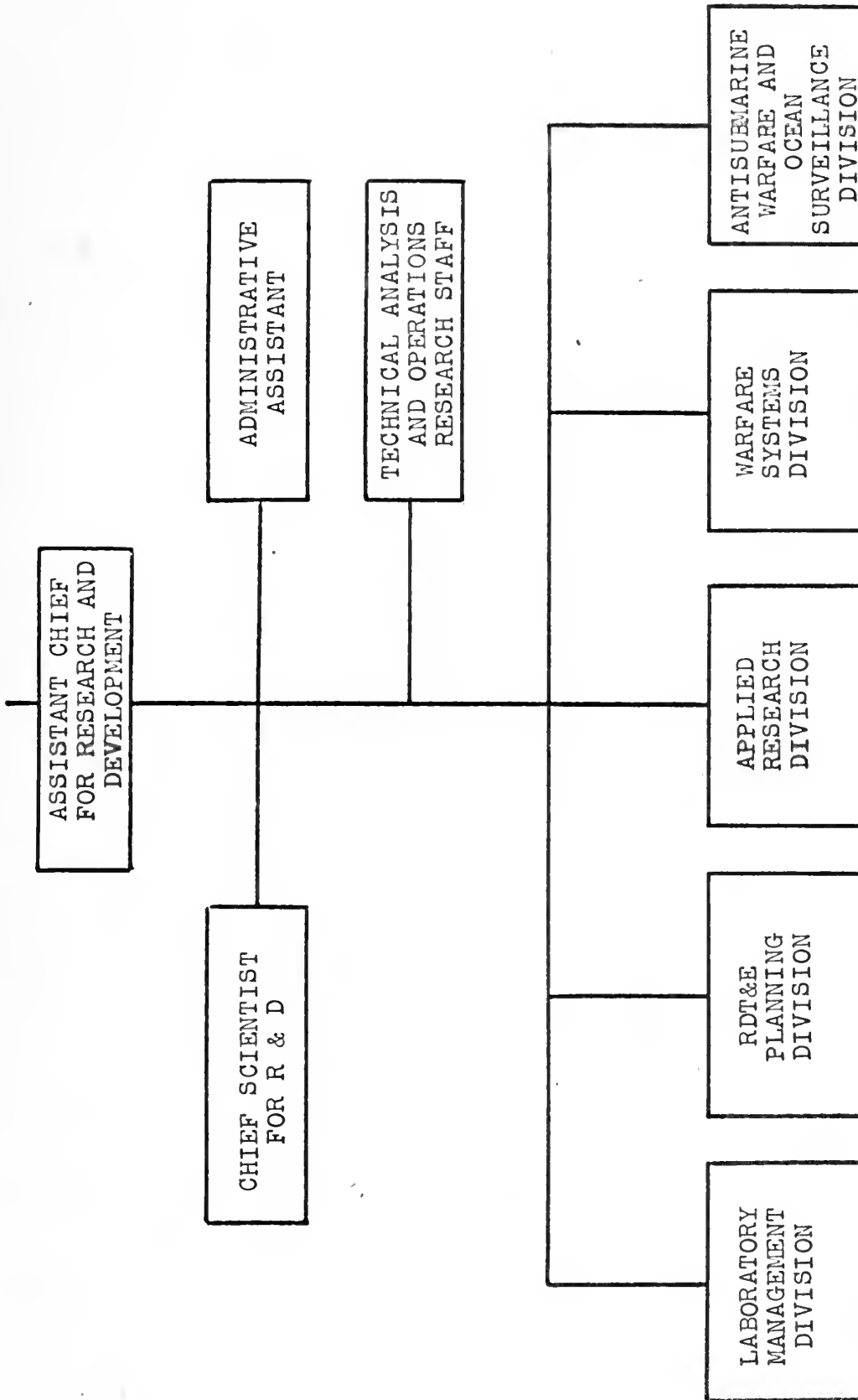


Fig. 11--Present Organization of the Assistant Chief for Research and Development.



the information on applicability of new and projected designs to those interested in bettering the designs of Navy ships. In essence, therefore, it is an INFORMATION function, charged with the collection, evaluation, and dissemination of Research, Development, Test, and Evaluation information.

Applying the INTRINSIC FUNCTIONS within the organizational element of the Assistant Chief for Research and Development, we see that the primary ACTION functions are those concerned with obtaining and evaluating the required information: the Applied Research Division, the Warfare Systems Division, and the Antisubmarine Warfare and Ocean Surveillance Division. One more ACTION function should be added--the Project Management Division. It seems certain that Project Managers in R&D will be assigned and the addition of this Division as an ACTION function will ensure that they are fitted into their proper place.

The STAFF functions are properly performed by the Administrative Assistant and the Chief Scientist for R&D. The present Technical Analysis and Operations Research Staff is not a true STAFF advisory function, but a planning and control function; therefore, it should more logically be located in the RDT&E Planning Division. It is placed under that Division as a separate Branch.

The INFORMATION functions are performed by the RDT&E Planning Division, which plans and controls the various R&D Programs and Budgets, and acts as the focal point for documents



and information relating to RDT&E programs and projects.

The SUPPORT function is performed by the Laboratory Management Division, which manages the program aspects of the major BUSHIPS laboratories.

The proposed structure of this organizational element is shown in Figure 12.





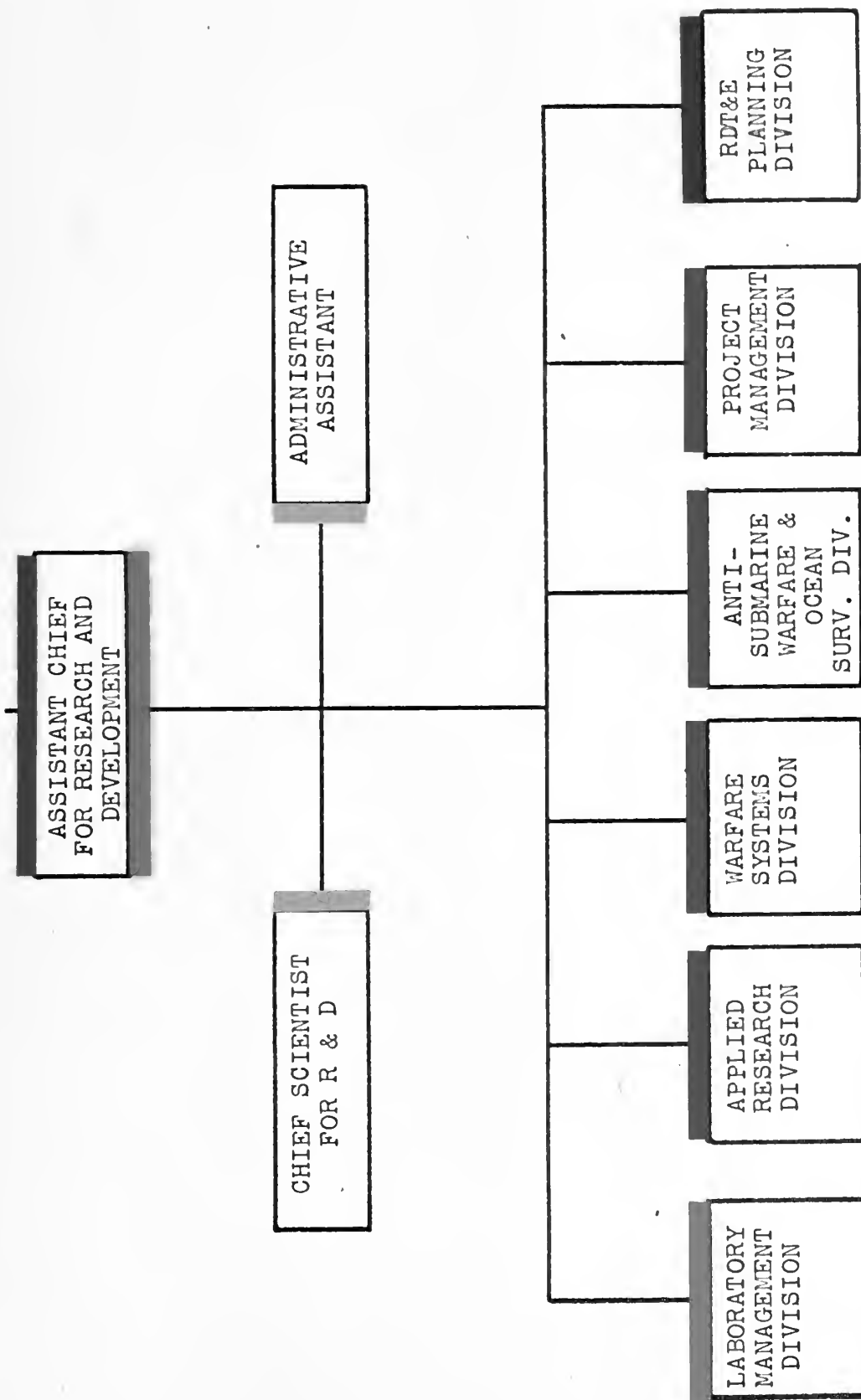


Fig. 12.--Restructured Organization for the Assistant Chief for Research and Development

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## CHAPTER XI

### ASSISTANT CHIEF FOR DESIGN, SHIPBUILDING, AND FLEET MAINTENANCE

The mission of the Assistant Chief of the Bureau of Ships for Design, Shipbuilding, and Fleet Maintenance is to ensure that the design, construction, conversion, alteration, maintenance, and improvement of ships and craft properly support the mission of the Bureau of Ships. The organization is the second largest element of the Bureau; it consists of approximately seventy-five officers and 660 civilians, of whom about 485 are technical, professional, engineers, and scientists, and about 175 are administrative, clerical, and support personnel.

Responsibilities include the conceptual design of ships, the preparation of contract plans and specifications, administration of shipbuilding contracts, and administration of the Fleet Maintenance Program.

The present organization diagram to the Division level is shown in Figure 13.

This organizational element is one of the principal ACTION elements of the Bureau. As such, it carries out some of the most important work of the Bureau and is supported by the rest of the Bureau organization in its work. As presently



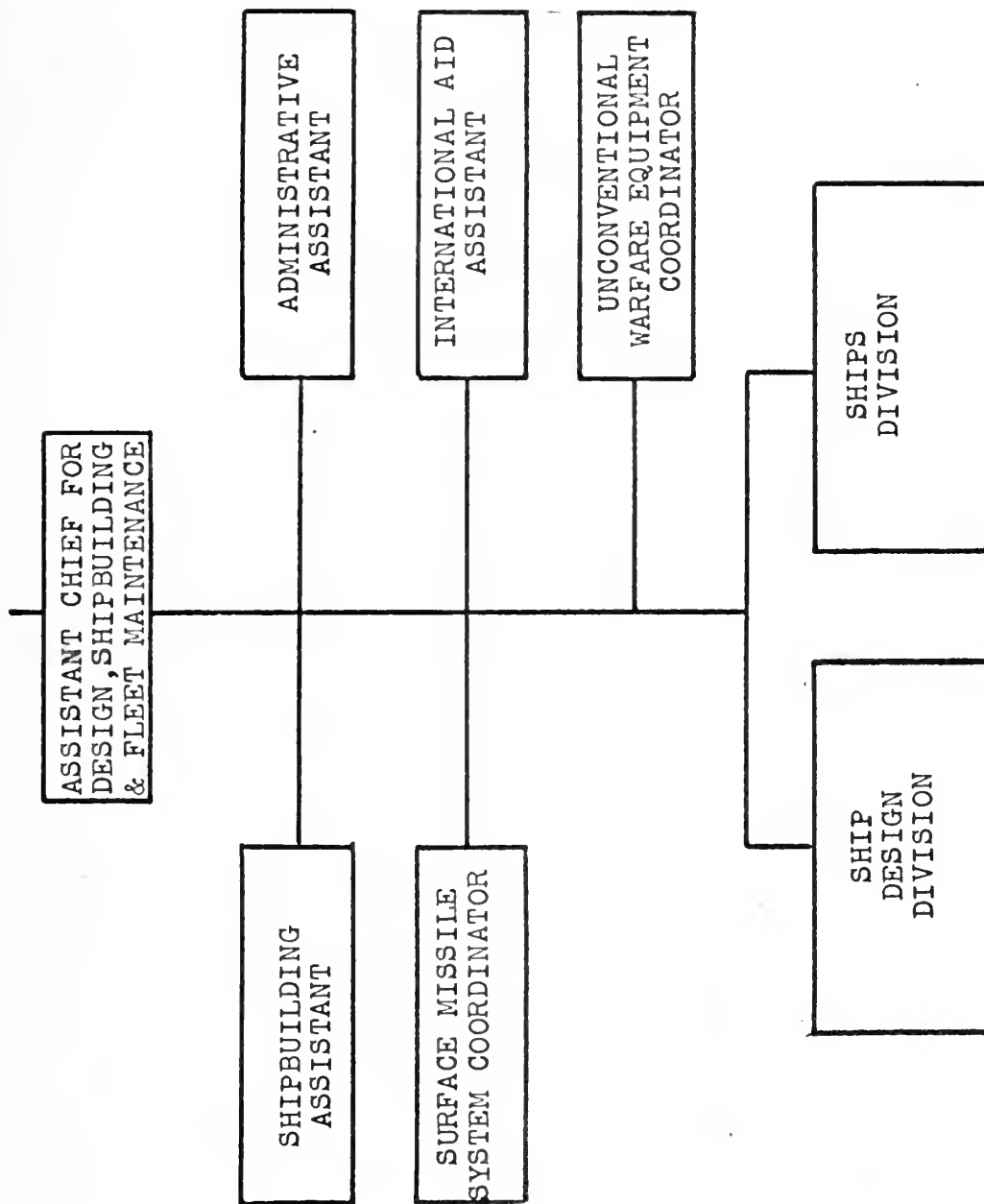


Fig. 13.--Present Organization of the Assistant Chief for Design, Shipbuilding, and Fleet Maintenance.



structured, it has only two divisions and these are both properly located under the ACTION function in the INTRINSIC FUNCTION breakdown of the organizational element of this Assistant Chief. The other INTRINSIC FUNCTIONS which are performed within this element are performed below the Division level, and therefore not included in this analysis.

The organization is essentially consistent in structure with the concepts being considered. However, here again some of the staff assistants to the Assistant Chief might be more effective in other locations in the organization. The Unconventional Warfare Equipment Coordinator, Code 404, should be relocated to the Ships Division, since his responsibilities are not primarily advisory in nature, but concern the ships and equipment of the operating division. Similarly, the Shipbuilding Assistant, Code 406, who has many operating functions and few advisory ones, should be placed in the operating line, probably in the Ships Division. The Administrative Assistant, Code 402, and the International Aid Assistant, Code 409, are properly placed as STAFF advisors and should remain in their present locations. The Special Assistant for Missile Ships, Code 103, in the office of the Chief of the Bureau, can better perform his functions as STAFF to the Assistant Chief for Design, Shipbuilding, and Fleet Maintenance; he should be moved there to work in conjunction with the present staff officer, Surface Missile System Coordinator, Code 400G. Also the Supervisor of Salvage, Code 108, should be moved to this STAFF position from





that of the Chief of the Bureau for the same reason--he can function better as advisor to the executive most closely associated with the work to be performed.

Two other changes are in order. The Assistant Chief for Nuclear Propulsion performs functions that are not greatly different from those of the Assistant Chief for Design, Shipbuilding, and Fleet Maintenance. The fact that Nuclear Propulsion is new and has been a rapidly changing and developing field probably caused the creation of a separate major element specifically devoted to nuclear power, just as steam probably demanded similar treatment in the early days of conversion from sail to steam. It appears reasonable to recognize that the Nuclear Propulsion function now is so intimately associated with modern design, shipbuilding, and maintenance that it need not be kept isolated, but may be combined for more cohesive organization and future management. For this reason Nuclear Propulsion is added as a separate Division, also recognized as an important ACTION function. Finally, recognizing that there will undoubtedly be important Projects assigned to the Assistant Chief for Design, Shipbuilding, and Fleet Maintenance, a separate Division is shown for handling these Projects under the Project Manager concept. This Division will probably not be activated until the assignment of some significant project or projects, but it is provided for as an ACTION element of the organization. The restructured organizational element is shown on Figure 14.

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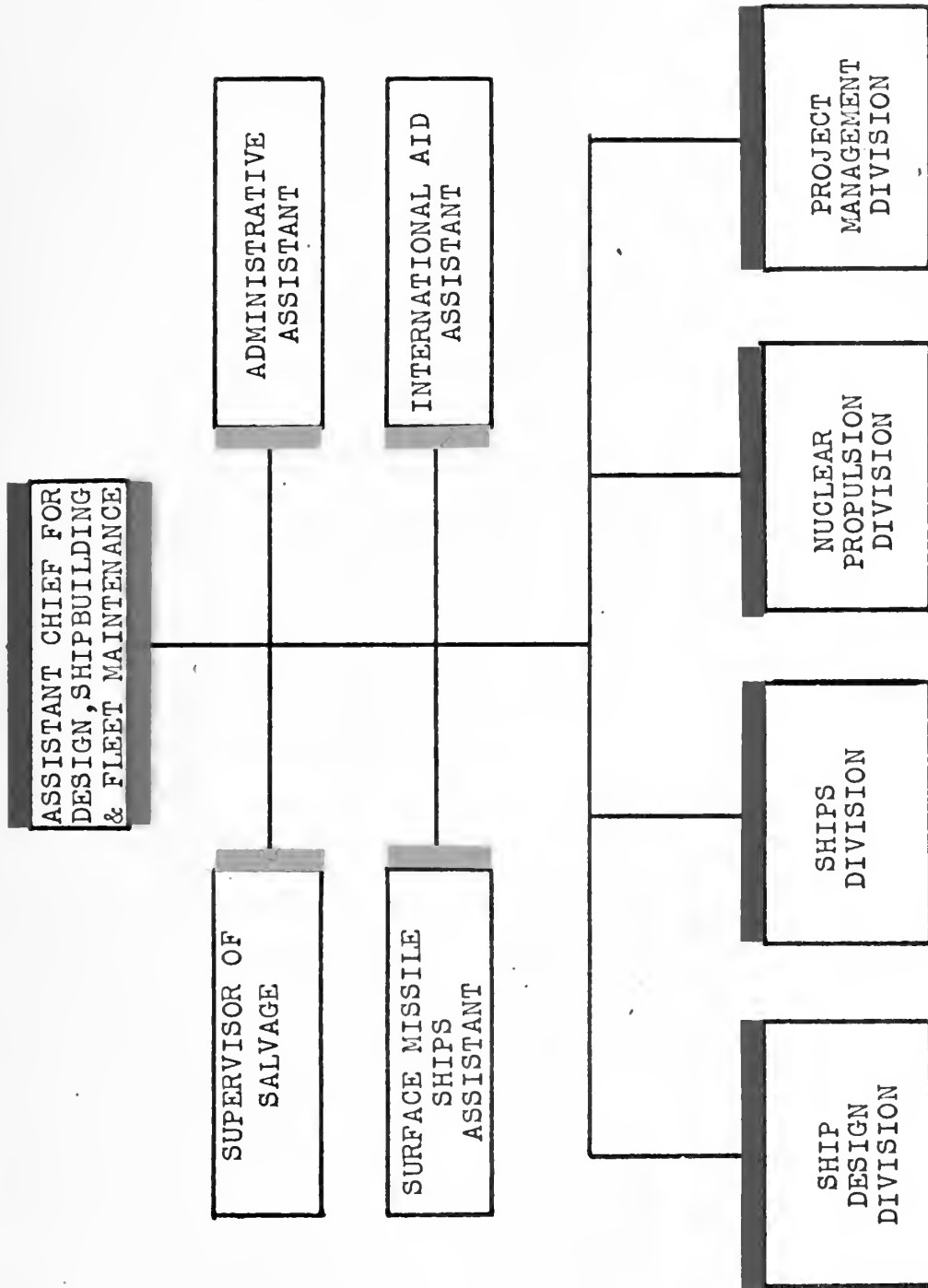


Fig. 14.--Restructured Organization of the Assistant Chief for Design, Shipbuilding, and Fleet Maintenance.

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## CHAPTER XII

### ASSISTANT CHIEF FOR TECHNICAL LOGISTICS

The mission of the Assistant Chief of the Bureau for Technical Logistics is to ensure that systems, equipments, components, and materials properly support the mission of the Bureau. This is the largest organizational element of the Bureau; it consists of approximately eighty officers and 1270 civilians. There are about 700 civilian engineers, scientists, professionals, and technicians, and about 570 administrative, clerical, secretarial, and support personnel in this element.

Responsibilities include the engineering, procurement, and maintenance of all hull, machinery, electrical, and electronic systems, equipments, and components which are installed in naval ships or which are used in shipbuilding and Fleet support, except for nuclear propulsion systems.

The organization diagram for the present structure is shown in Figure 15. It can be seen that this Assistant Chief, in addition to having the largest element in numbers of personnel in the Bureau, also has the largest span-of-management--some eleven subordinates reporting to him. As with the office of the Chief of the Bureau, this is considered to be too great a span for effective management for an executive at this level; however, because of the departmentation along product lines, little can be



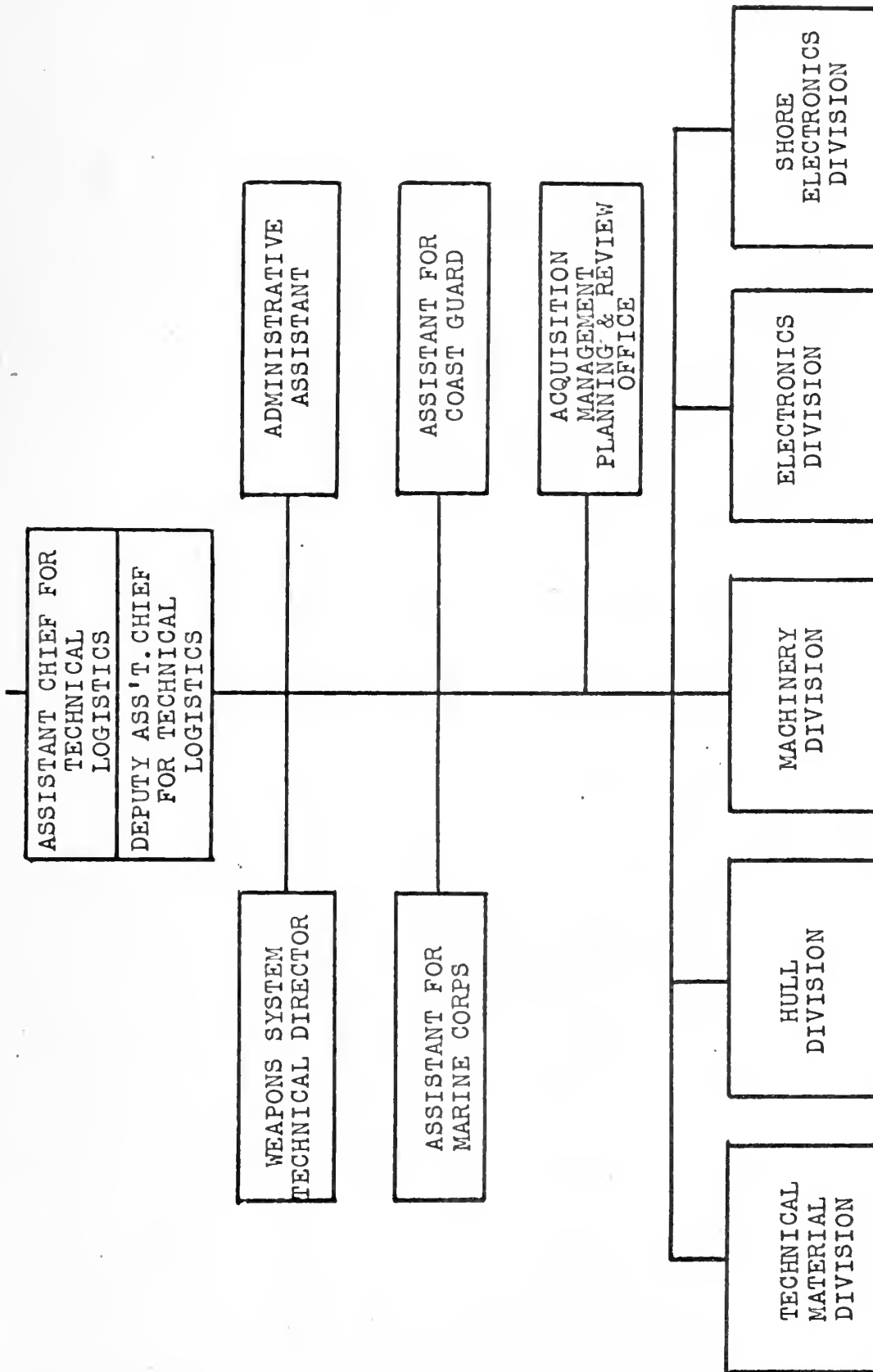


Fig. 15.--Present Organization of the Assistant Chief for Technical Logistics.





done to reduce the span except by adding another layer of management under the Assistant Chief. This is not considered to be advisable in this case.

The Assistant Chief for Technical Logistics provides an overall SUPPORT function to the Bureau. In restructuring and streamlining this element, the first approach will be to remove those staff elements which are not performing a true STAFF advisory function. The first of these is the present Weapons Systems Technical Director, who actually has line, operating functions and should be recognized as such and placed in the Hull Division, rather than continued as a staff component. The Development Planning and Review Office appears to be misplaced; the duties and responsibilities of this office might better be a portion of the Director of Contracts and/or the Administrative Assistant to the Assistant Chief for Technical Logistics. The remaining staff assistants are truly performing advisory STAFF functions and should be retained on the staff of the Assistant Chief.

The operating divisions of this element are organized along product lines and remain essentially unchanged. All are ACTION functions and the other INTRINSIC FUNCTIONS are provided at the lower levels of the organization.

The Shore Electronics Division should be eliminated when those provisions of the Dillon Report which apply to its transfer out of the Bureau of Ships are implemented. In its place should be a Nuclear Propulsion Division, which will assume the duties and responsibilities of the present Assistant Chief for Nuclear



Propulsion, Code 1500, which pertain to Technical Logistics for Nuclear Propulsion.

The organization diagram of the restructured element of the Assistant Chief for Technical Logistics is shown on Figure 16.



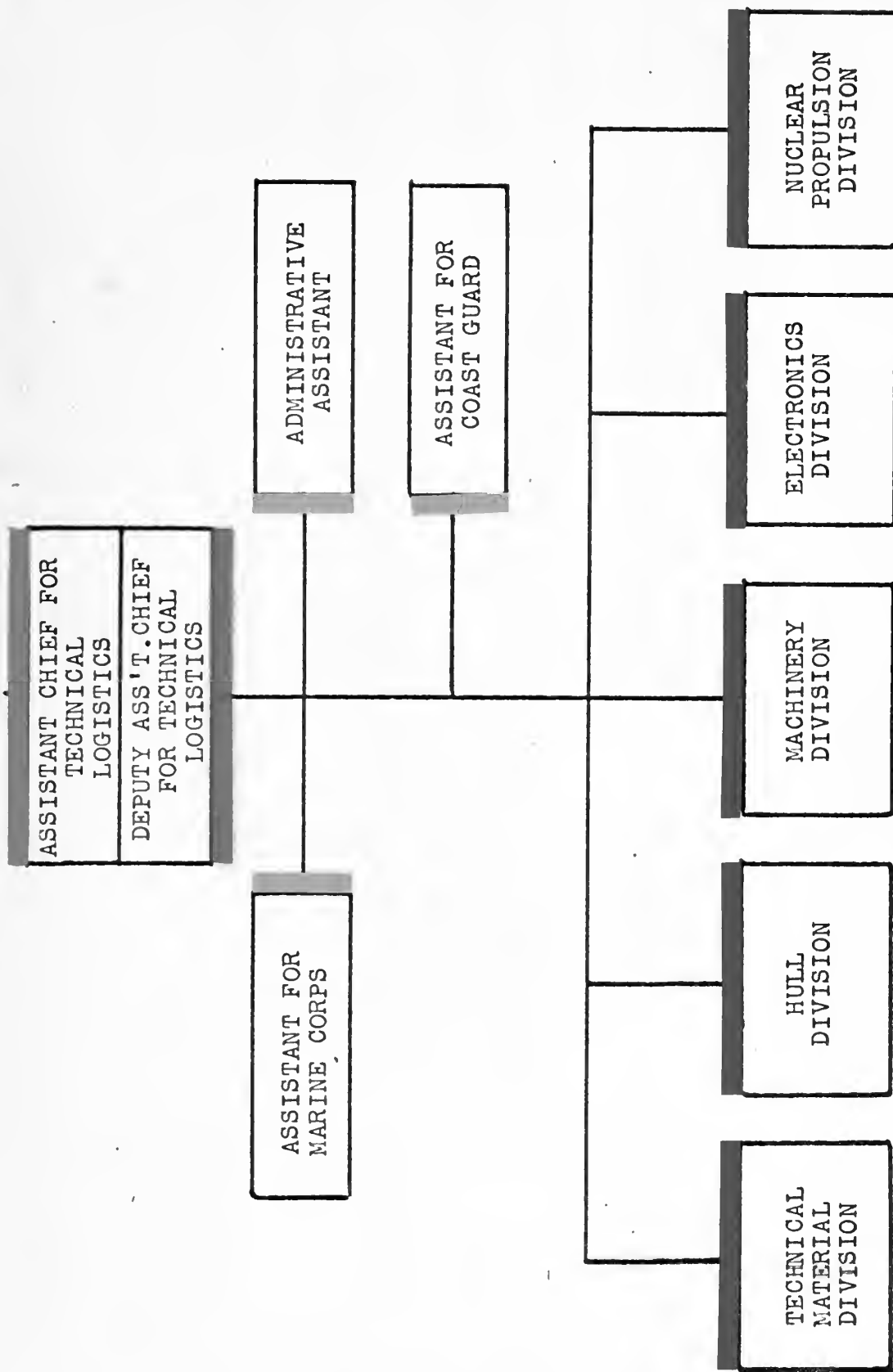


Fig. 16.--Restructured Organization of the Assistant Chief for Technical Logistics.

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## CHAPTER XIII

### ASSISTANT CHIEF FOR FIELD ACTIVITIES AND INSPECTOR GENERAL

The mission of the Assistant Chief of the Bureau of Ships for Field Activities and Inspector General is to ensure that the field activities properly support the mission of the Bureau and to serve as BUSHIPS Inspector General. This element consists of approximately twenty-two officers and 185 civilians. Of the civilian component about fifty-five are engineers, scientists, technicians, and professionals, and about 130 are administrative, clerical, secretarial, and support personnel.

Responsibilities fall in two separate fields: (1) management control of BUSHIPS field activities, and (2) appraising the operations of the Bureau and its field activities. Included in these responsibilities are the providing of administrative support of assigned Fleet support activities; administering Bureau-field programs in assurance engineering, computers, and training; and controlling BUSHIPS-sponsored industrial reserve plants and shipyards and industrial facilities at private shipyards and plants. Present organization is as shown in Figure 17.

Because of the principle that review of the performance of an element of an organization should not be conducted by a





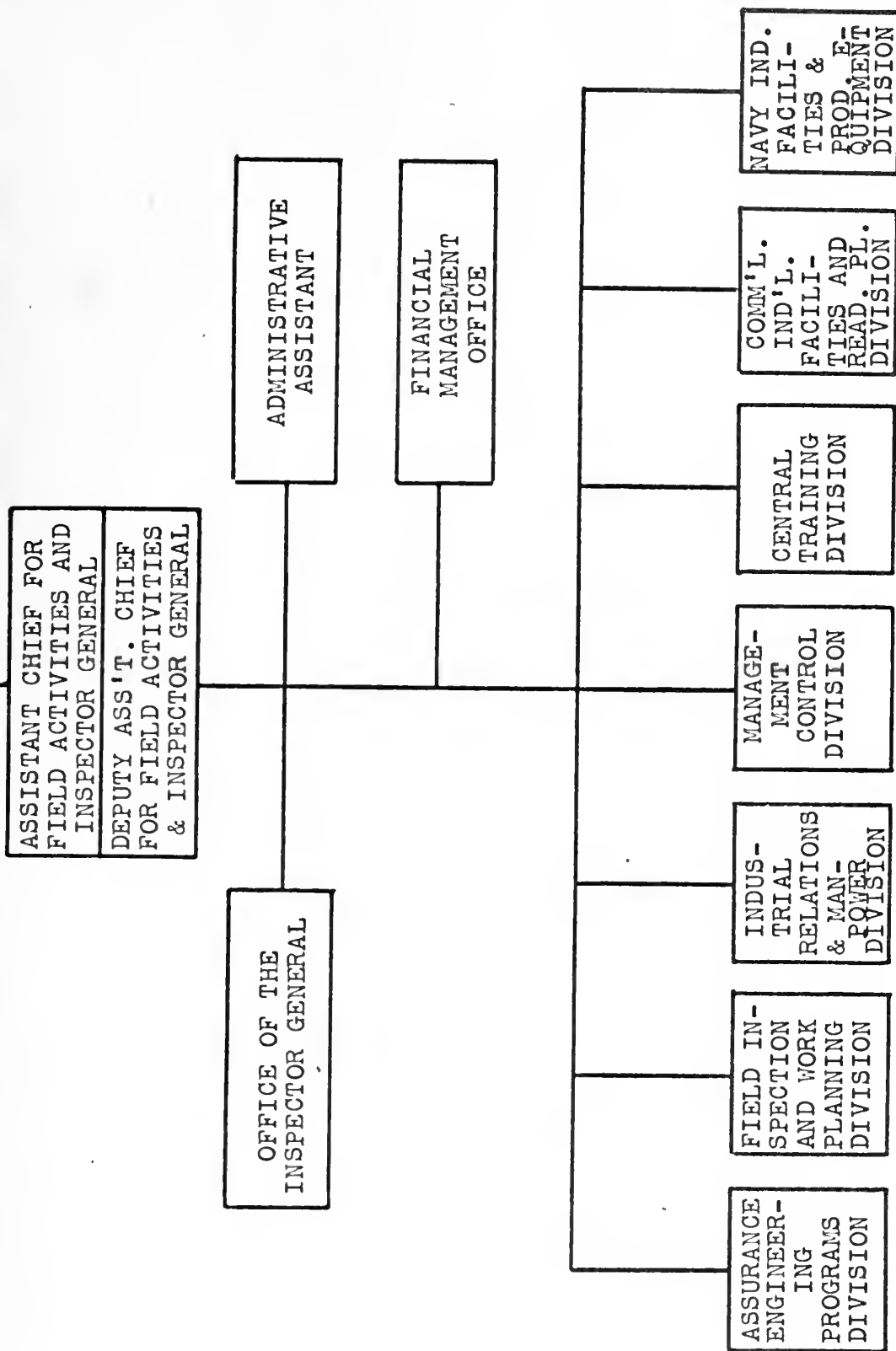


Fig. 17.--Present Organization of the Assistant Chief for Field Activities and Inspector General.



component of that same element, and because there are two separate and distinct functions performed by this organizational element, the structure should be changed to remove the Inspector General from the organization of the Assistant Chief for Field Activities. Essentially the Assistant Chief has a primary ACTION function--the management of BUSHIPS field activities. The Inspector General, on the other hand, has an INFORMATION function; he is responsible for the assessment of those field activities and the production of information which assists in the evaluation of their performance. The Inspector General should be placed under the Deputy Chief for Information, as shown on Figure 8. Here he has free rein to conduct such audits, inspections, and assessments as are deemed necessary, and to develop and disseminate such information on performance as he finds appropriate.

This move leaves the Assistant Chief for Field Activities, whose primary function is the ACTION function of management control of the various Bureau Field Activities. Within his organizational element the primary ACTION function is that performed by the Field Activity Management Division. The remaining functions require some rearrangement. A study of the present organization shows that the element is fragmented into a number of small divisions, four of which have only two branches. This span-of-management of two at this low level of the organization is wasteful of supervisory personnel; it is particularly striking when it is noted that the span-of-management of the higher level executives in the Bureau



approaches the maximum allowable for effectiveness and sometimes exceeds that figure. A combination of related functions into a smaller number of divisions is indicated. The Commercial Industrial Facilities and Readiness Planning Division and the Navy Industrial Facilities and Production Equipment Division, each with two branches, are combined into a single Industrial Facilities Division, with a principal SUPPORT function to the Assistant Chief. Similarly, the Central Training Division is merged into the closely related Industrial Relations and Manpower Division, which also provides a SUPPORT function. The Assurance Engineering Programs Division and the Management Control Division are retained as presently structured; each provides an essential INFORMATION function to the organizational element.

The STAFF assistants to the Assistant Chief are reduced to one--his Administrative Assistant. The Financial Management Office appears to be an unnecessary duplication of the work of the Comptroller, and those duties not reassigned to the Comptroller can be taken over by the Management Control Division.

With the changes made as indicated above, the organization is sufficiently streamlined so that a Deputy is no longer needed. The restructured organizational element of the Assistant Chief for Field Activities is shown in Figure 18.



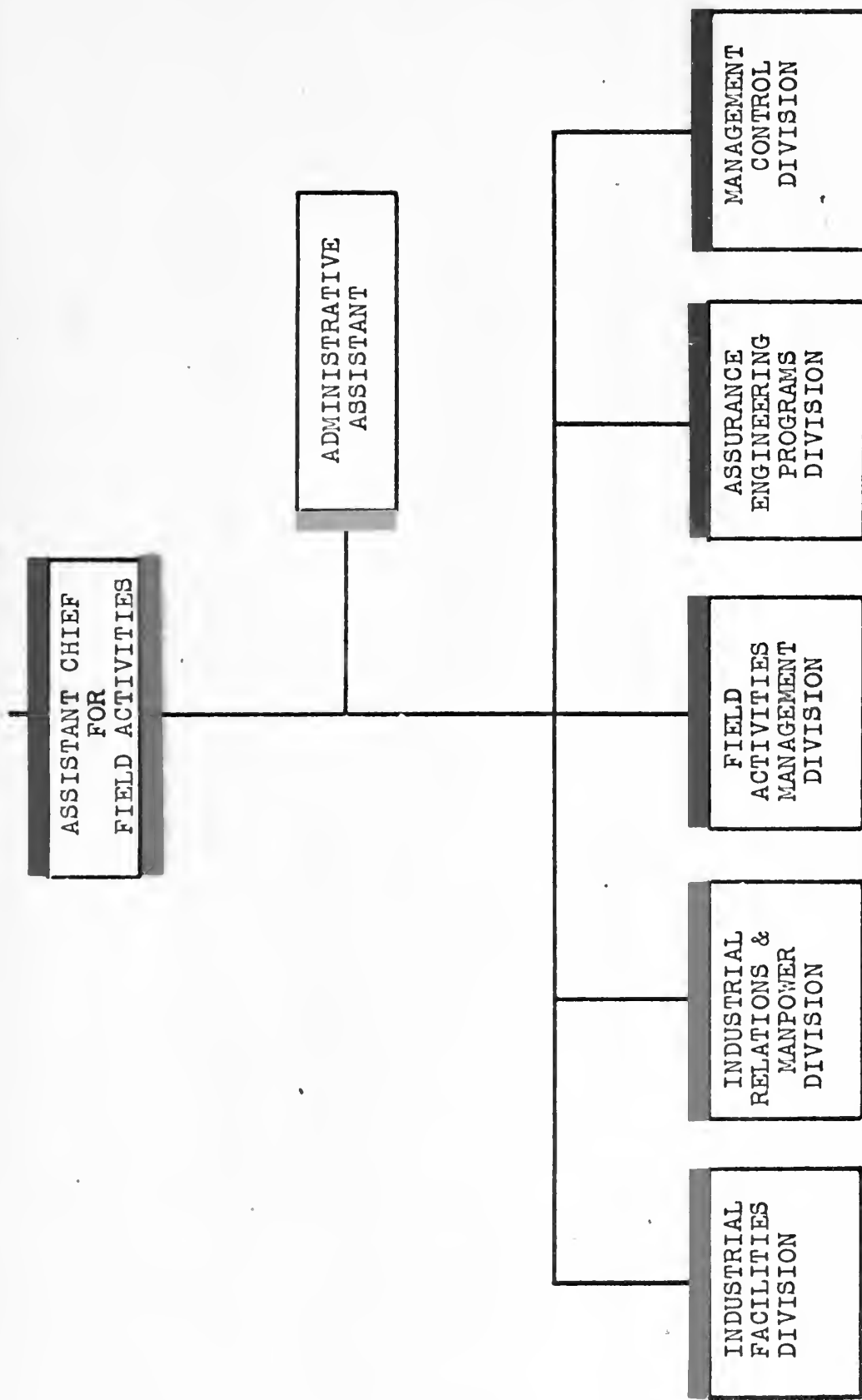


Fig. 18.--Restructured Organization of the Assistant Chief for Field Activities.

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## CHAPTER XIV

### ASSISTANT CHIEF FOR NUCLEAR PROPULSION

The mission of the Assistant Chief of the Bureau of Ships for Nuclear Propulsion is to ensure that all matters dealing with nuclear propulsion of ships properly support the mission of the Bureau. This element consists of one officer and eighty-four civilians, of whom forty-one are professionals, engineers, and scientists; forty-three are administrative, clerical, secretarial, and support personnel. Responsibilities include the development, design, procurement, production, installation, testing, and operational evaluation of new-type nuclear propulsion plants, and the engineering, procurement, installation, alteration, and maintenance of shipboard nuclear reactor plants.

Although this is a very important new field of great interest to the Navy, it does not differ greatly from the other functions which must be performed in designing and producing new ships and equipments for a modern Navy. Eventually nuclear propulsion must take its place alongside diesel propulsion, gas turbine propulsion, and the traditional boiler-steam propulsion as just another form of ship propulsion. For this reason, the structure of the Bureau of Ships should show it as a major component in the element of the Assistant for Design,



Shipbuilding, and Fleet Maintenance, rather than as a separate organizational element. For this restructuring, the Nuclear Propulsion Division is created and inserted in the organization as shown on Figure 14, and the Assistant Chief is removed from the proposed organization of Figure 8.



## CHAPTER XV

### DIRECTOR OF CONTRACTS

The mission of the Director of Contracts of the Bureau of Ships is to ensure the efficient and economical purchase of ships, equipment, material, and services required to support the mission of the Bureau. This organizational element consists of two officers and 216 civilians, 136 of whom are administrative, business, and management staff, with the remaining eighty being secretarial, clerical, and support staff. The responsibilities include preparing, advertising, negotiating, administering the business aspects, and terminating contracts for the various activities, materials, and services required by the Bureau of Ships. The Director principally provides a SUPPORT function to the Bureau.

This element is organized as shown on Figure 19. The only discrepancy in the organization seems to be in the placement of the staff assistant, Assistant for Procurement Planning and Special Matters. From all indications, this is the most important operating element of the organization and should be placed in a line category, not a staff one. The primary functions include gathering and evaluating information and controlling certain processes; therefore, it appears to be most appropriately considered as an INFORMATION function. Its name



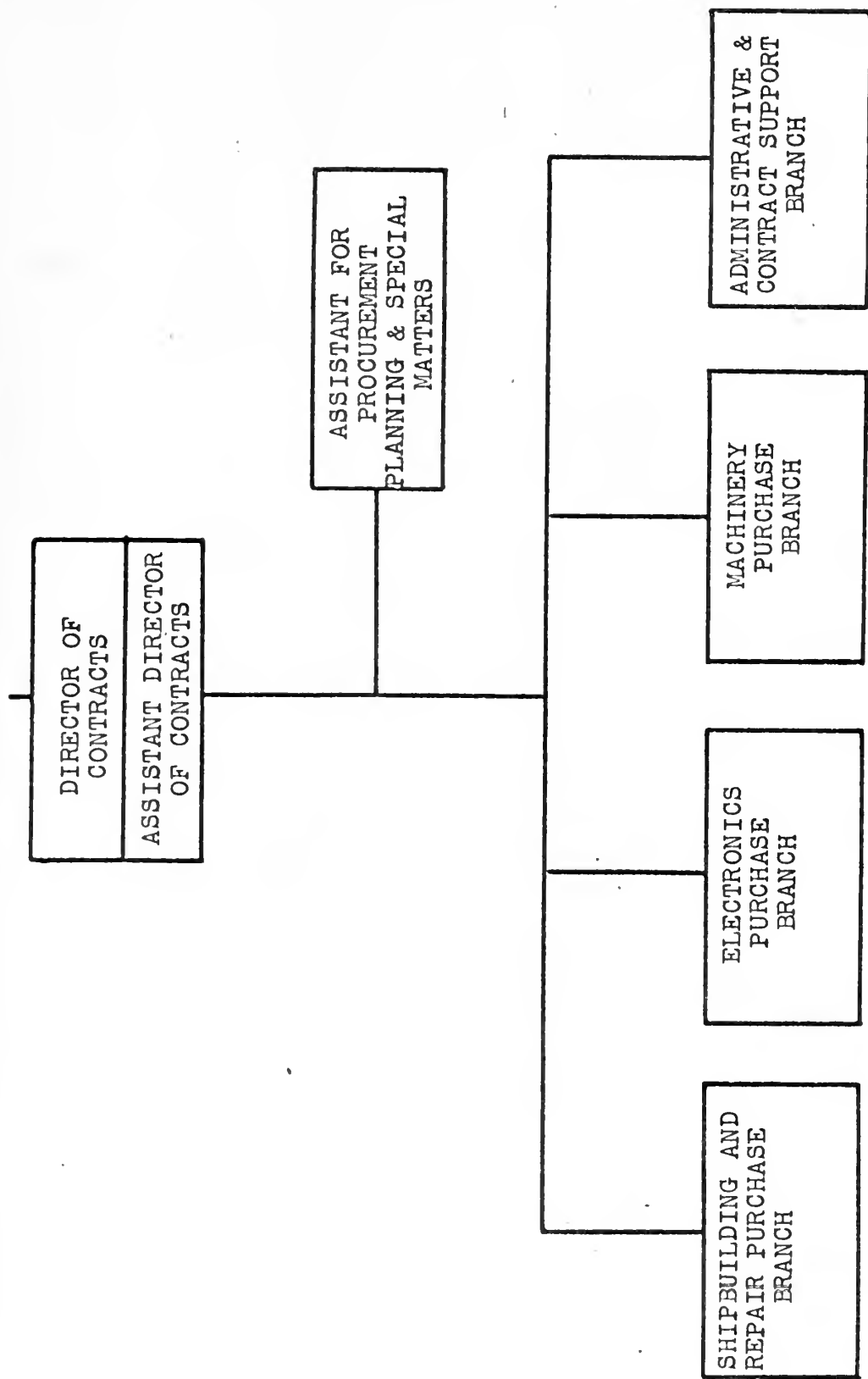


Fig. 19.--Present Organization of the Director of Contracts.





should be changed to reflect the duties performed; Planning and Control Branch seems suitable.

It does not appear that the Director of Contracts requires an Assistant Director, except for providing an approved signature to contracts which may be required in the Director's absence. For this reason, however, and because the Director does not have an Administrative Assistant, the Assistant Director of Contracts is retained. As a STAFF advisor, the Small Business Specialist is moved from the office of the Chief of the Bureau to the STAFF of the Director of Contracts, this seemingly being more appropriate to the type of work actually performed.

The restructured organization of the Director of Contracts is shown in Figure 20.



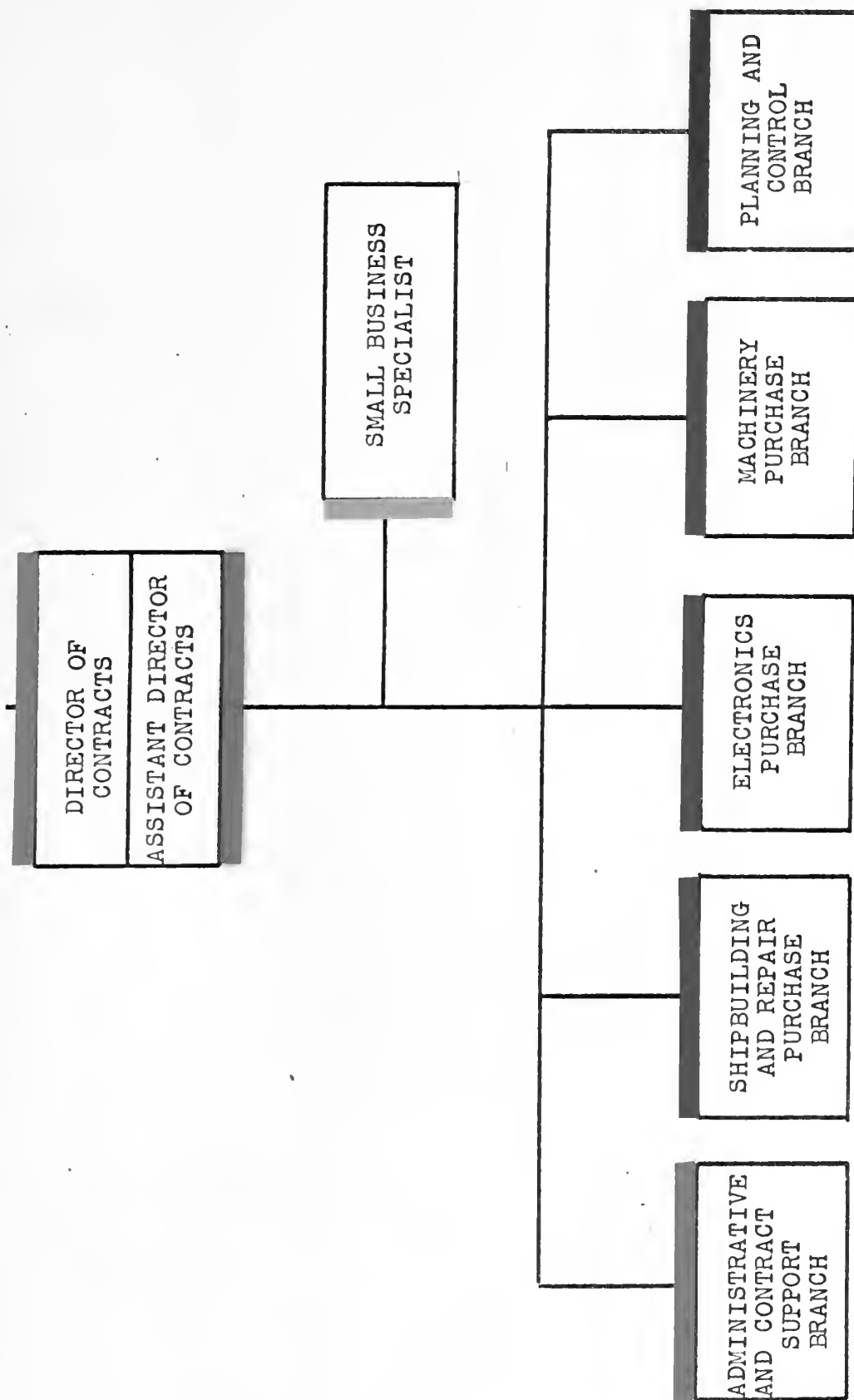


Fig. 20.--Restructured Organization of the Director of Contracts.

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## CHAPTER XVI

### COMPTROLLER

The mission of the Comptroller of the Bureau of Ships is to ensure that financial management functions of the Bureau are performed so as to support the Bureau's mission and conform with law and regulations. The organization consists of one officer and about 145 civilians, all of whom are professional, administrative, clerical, secretarial, and support personnel. Responsibilities include developing, coordinating, and administering the Bureau's overall financial management program for appropriations and funds made available to Bureau headquarters and field activities. The present organization is shown in Figure 21.

As presently organized, the Comptroller exercises nothing more than a SUPPORT function to the Bureau. Some information is provided to the other elements of the Bureau, but financial administration and coordination seem to be the principal objective of this office. This limited utilization seems to be the trend in government organizations. Modern business organizations have found that the Controller is an executive who is an important addition to management because of his unique capability for obtaining and evaluating information. Since the Controller is primarily responsible for financial



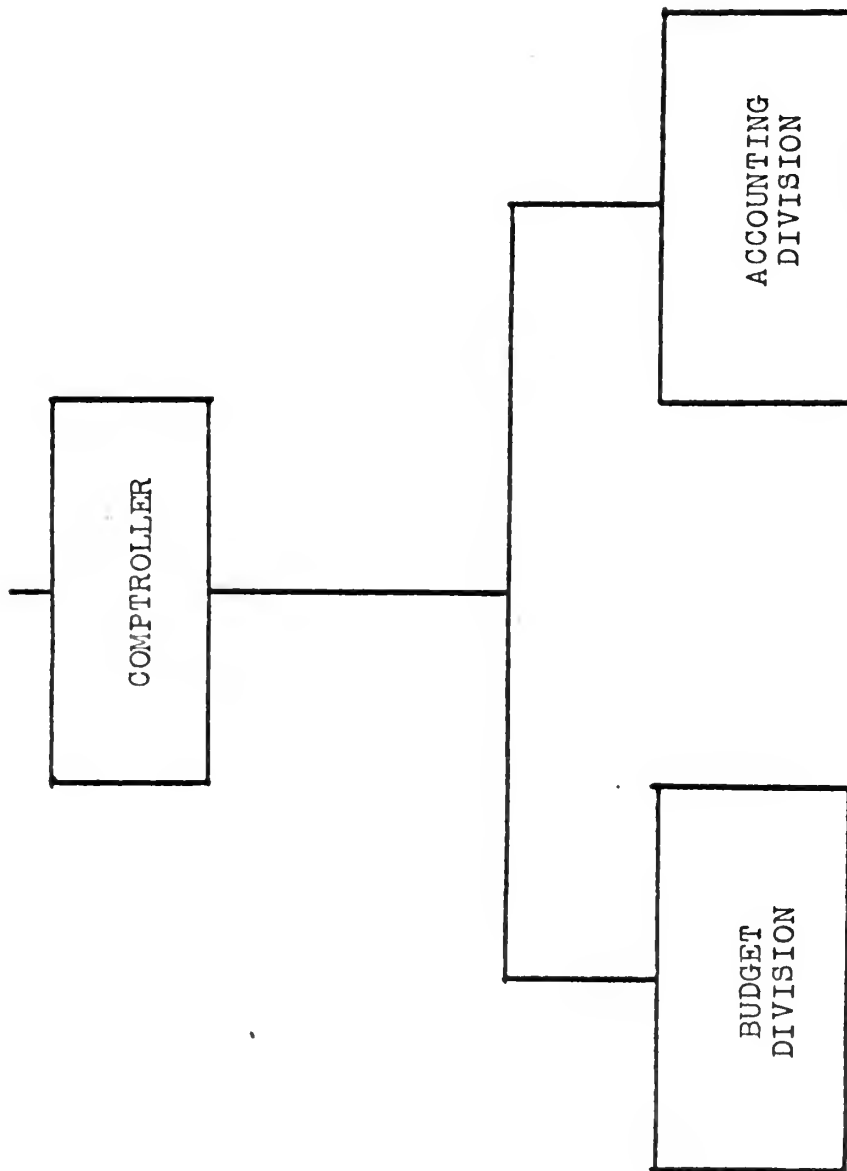


Fig. 21.--Present Organization of the Comptroller.





matters and since plans are directly related to funds and budgets, he can be used as the principal planner in the organization. Controls are exercised based upon plans, and the Controller is in the best position to institute such controls.

This, too, should be the function of the Comptroller of the Bureau of Ships: an INFORMATION function to the organization. He should have, in addition to the financial management aspects of his job, the primary planning and control function for the Bureau.

This does not mean that the Comptroller would do the detail planning for the entire Bureau of Ships--such would be outside of his capabilities. He would, however, be the central planning coordinator and would tie together both the financial aspects of the plans and the operating aspects. Because of the important relationships of plans and funds, plans and budgets, and plans and controls, the Comptroller is in an excellent position to correlate all of the Bureau's plans, and to develop controls to ensure that the plans are being carried out properly.

With this important responsibility in mind, the Comptroller is assigned an INFORMATION function in the overall Bureau organization; information includes plans, guidance, funds, and control procedures. The restructured organization shown in Figure 22 contains two new Divisions, both ACTION functions within the Comptroller organization. The Planning Division does the necessary coordination of the overall Bureau Plan, both financial and operating, and furnishes information to



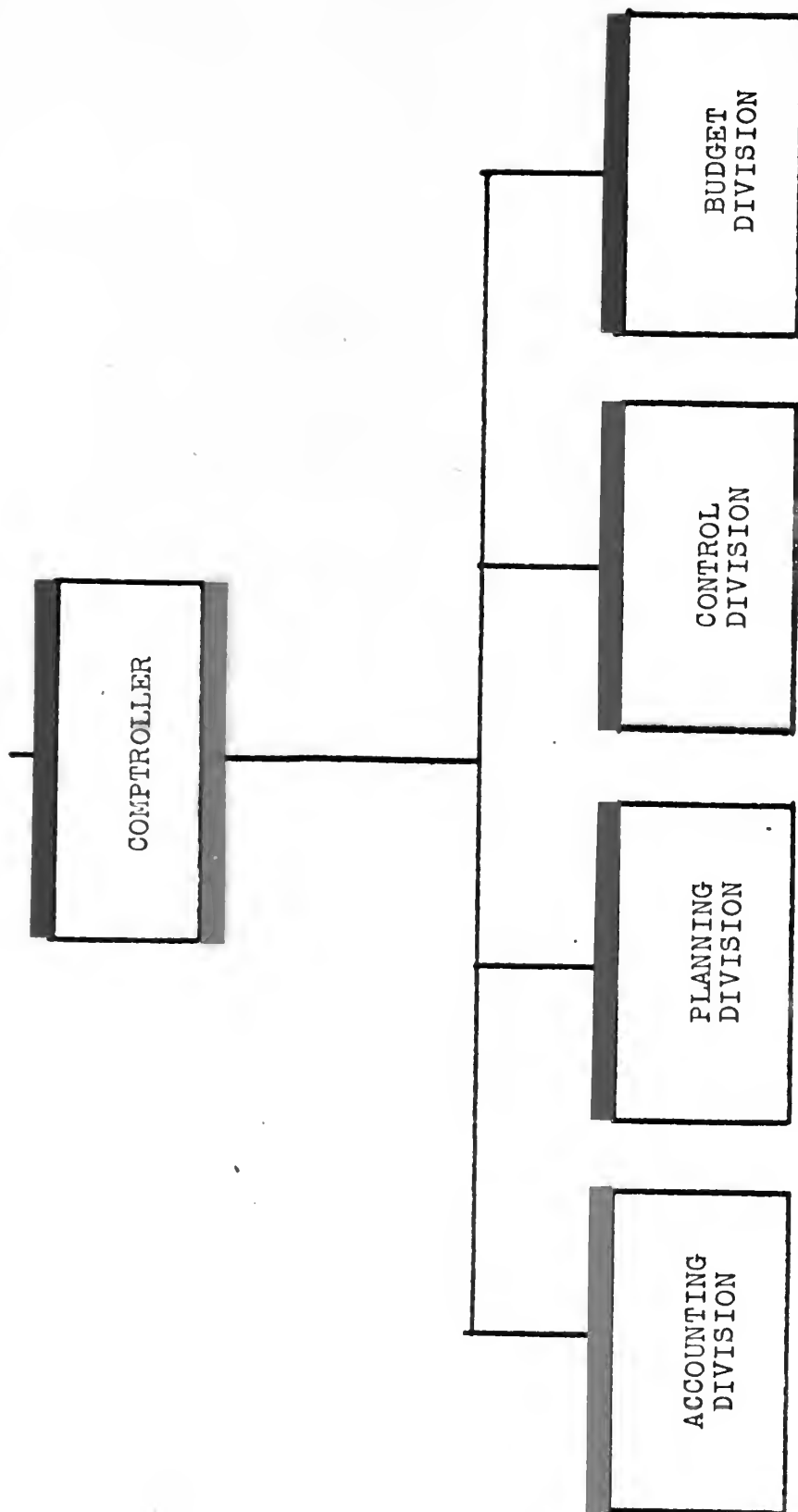


Fig. 22.--Restructured Organization of the Comptroller.

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all concerned on the essentials of the Plan. The Control Division provides information on control procedures to be used to ensure adherence to the Plan. These procedures may include automated PERT TIME and PERT COST, or they may be limited to manual systems; however, the essential control information should be generated in this division.

The Accounting Division remains as the principal SUPPORT function to the Comptroller; and the Budget Division, working very closely with the Planning Division, provides the necessary INFORMATION function to the Comptroller in developing and evaluating the Bureau's budget.



PART III

SUMMARY AND CONCLUSIONS





## CHAPTER XIII

### SUMMARY AND CONCLUSIONS

In today's complex society large organizations are built up to accomplish the objectives of business, military, political, and social groups. Some of these organizations are well planned and well designed to accomplish the desired purposes; others are inept and inefficient. Good organizations are badly needed; this means that good organization plans and organization structures must be developed. This is particularly important in the business world, where men must at times work with illogical and unwieldy structures and still perform at maximum effectiveness. The military and military/civilian organizations also face the problems of organization structuring for maximum efficiency--this is one of the most important problems to be overcome if they are to keep pace with the rapidly advancing technology of the modern world.

Examination of the works of a number of authors on this subject shows that there are many ways of approaching the problems of planning and developing organization structures. Such structures can establish the necessary relationships to reach the organization's goals. It is possible to organize rather loosely around the available personnel and to depend upon those personnel to accomplish the tasks with maximum efficiency.



This is a difficult, if not impossible, situation in the military/civil service environment, where there are periodic changes of personnel and the quality of the managers assigned may not be uniformly excellent. The preferred method of structuring organizations is by division into functional elements, with sufficient flexibility to allow for individuals to expand upon their functions as necessary and as their capabilities allow, provided it benefits the organization.

In structuring an organization, the writer proposes that five INTRINSIC FUNCTIONS of DECISION, ACTION, INFORMATION, SUPPORT, and STAFF should be recognized and should form the basis for fitting together the basic and subordinate functions to be performed. From the consideration of these five important functions at all levels can come efficient and workable organization structures.

The informal organization must be considered when drawing up a formal organization structure. The formal organization is the way a unit was designed to work; the informal organization is the way it actually accomplishes some of its functions. Since the informal mode is that which has been proved effective, the formal organization should fit it as nearly as is possible. This fit or agreement between the two will be enhanced by use of the INTRINSIC FUNCTIONS in developing and refining the organization structure.

Major streamlining can be effected by reducing the layering effect of "middle management," which tends to build up



in bureaucratic fashion. Removal of layers of management in this area, extending the span of control of top managers, and improving coordination between top level and lower level management can be accomplished by better use of Automatic Data Processing systems for control and information purposes.

Project Managers may be properly used in the limited few instances when required by the importance of special jobs, but such special categories should be severely restricted. The managers used for this purpose should not be placed in a STAFF position, but in an operating line position, as indicated by their type of work and the importance of their portion of the project.

Good organizations can help good men do their jobs better. Good organizations do not just happen--they are carefully planned and developed. Streamlining structures can help in developing good organizations.

Conceptual application of the principles of streamlining organizations to the United States Navy Bureau of Ships shows how streamlining may promote increased efficiency and effectiveness through simplification of the organization structure and clearer delineation of the organizational responsibilities and interactions.

While it may be argued with good logic that the Bureau of Ships has functioned effectively in the past and therefore is not in need of organization change or structure changes, there are indications that any organization can benefit from streamlining. Certainly the structural changes which tend to develop without



regard to the basic organizational aims must be corrected periodically, and the organization must be kept simple and straightforward to avoid becoming involved in its own complexity. Modern writers have pointed out the need for modifying military organizations to take advantage of the changing concepts and the changing war situations. It is also possible to modify organizations to take advantage of the most modern business techniques, such as Automatic Data Processing, and for information and control procedures which may help to reduce the supervisory layering and thus reduce the overall numbers of middle management.

An examination of the present structure of the Bureau of Ships shows two rather startling departures from modern business management principles: (1) the span-of-management of many of the top executives in the organization is in excess of the generally accepted span of a top executive in business, while the spans of many of the lower level executives are below those accepted for fulltime activity for a manager; and (2) most of the top executives in the Bureau operate with large personal staffs which are not truly advisory staffs, but are instead operating line elements placed in staff positions.

The first of these characteristics of the Bureau indicates that perhaps the top executives are overburdened with too many direct subordinates who require too much of their time and allow too little time for conduct of the other important aspects of their jobs. The situation is emphasized by the fact that lower level executives have such a limited span-of-management that fulltime direction of subordinates would not





approach a full day's work. For example, the Chief of the Bureau has a total of eighteen direct subordinates reporting to him, while some of the Division Chiefs have only two Branch Chiefs reporting directly to them. Modern management concepts state that the opposite should be true--that the top executives should have from three to six subordinates, while the lower level executives may have six or more. All of which leads to the conclusion that the Bureau of Ships management does not really function as shown in the formal organization chart, but instead functions along some informal lines which give top executives fewer direct subordinates, and the lower level executives more direct subordinates. If this is true, a restructuring of the organization to show the exact operating relationships would be of great benefit to the organization and to those outside of the organization who have to deal with it.

The second of the deviations of the Bureau from the modern organizational concepts--that of large staffs doing operating jobs--is not quite so startling, since its practice is widespread and is condoned and actually favored in some circles. However, for purposes of simplicity and for better operating relationships between staff and line elements, it is considered to be better to retain as staff members only those who are advisors to the executive served, or who perform personal administrative services to that executive. The establishment in line positions of those staff elements who truly are acting in a line capacity will assist them in performing their jobs and will



further decrease the executive's reporting subordinates to a manageable size.

The complex Bureau of Ships structure can be streamlined considerably by application of the INTRINSIC FUNCTIONS approach to structuring. This allows identification of the basic important functions of the Bureau; it also allows simplification of the structures to provide for maximum effort along those lines for which the organizational element exists, thus maximizing the important functions and minimizing the less essential ones. Furthermore, it assists in reducing the overlap of responsibilities by clearly showing the operating relationships of the various elements.

Utilizing the INTRINSIC FUNCTIONS in streamlining the Bureau of Ships results in the organization restructured as shown in Figure 23. This is a simple, straightforward structure wherein all operating relationships may be clearly defined. The five INTRINSIC FUNCTIONS are shown, and the other functions performed by the Bureau shown in their proper locations. Although it was not primarily intended for reducing the numbers of executives, it is interesting to note that such a restructuring to the division level only will result in a reduction of STAFF principals (only one executive in each STAFF element) from a total of twenty-eight to a new streamlined total of fifteen. The resultant moving from staff to line of those true line operating functions increases the line executives (the one executive heading up an element) from forty-one to

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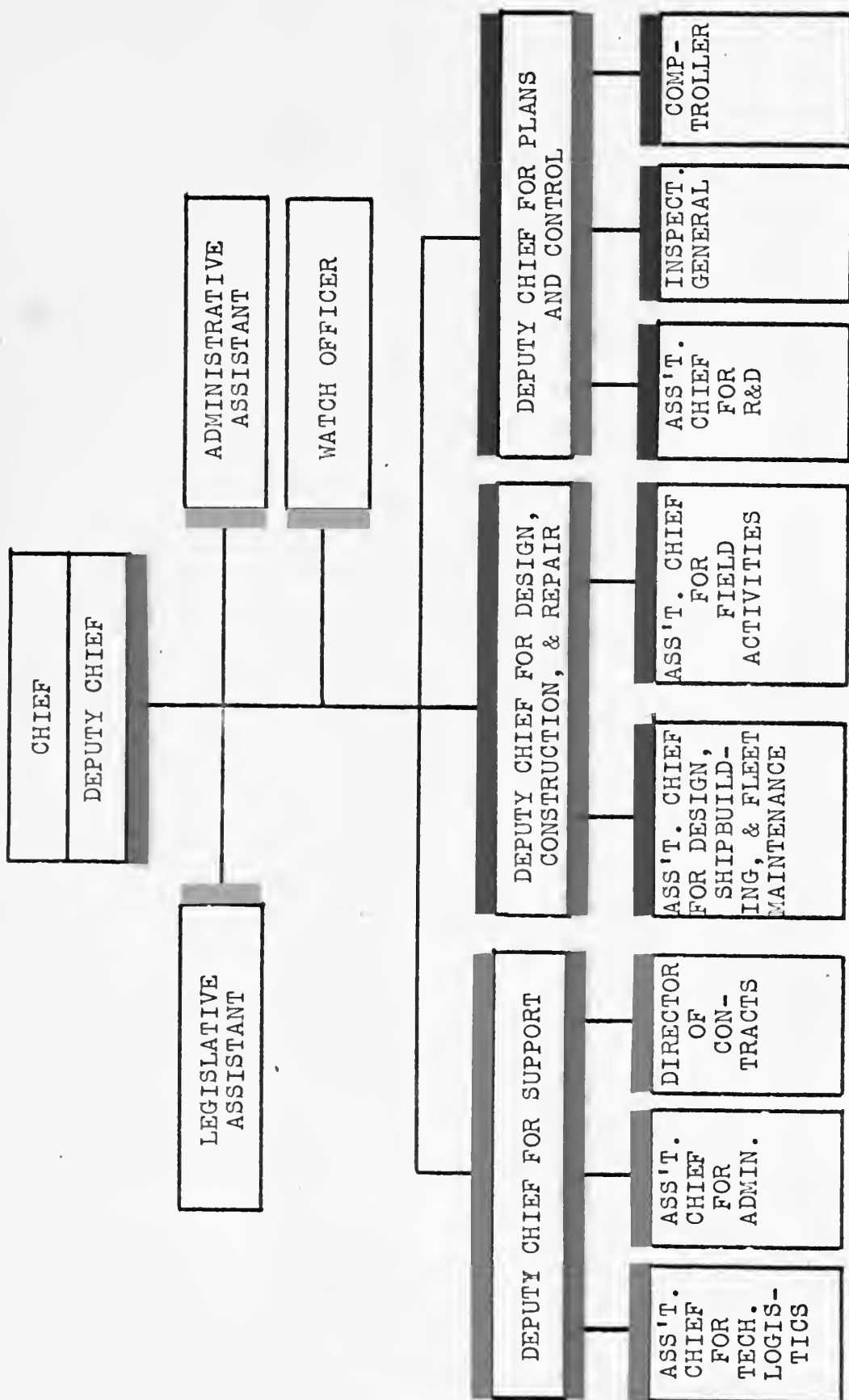


Fig. 23.--Restructured Organization for the Bureau of Ships.

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forty-eight. The net savings in executive manpower is six, or approximately 9%. Even greater savings can be made by following the same principles at lower supervisory levels, and at those levels there can be still greater clarification of responsibilities by use of the INTRINSIC FUNCTIONS in structuring.

The changes made in the restructured organization shown in Figure 23 reflect the recommendations made by the Dillon Report. They also provide for the important changes which must be made to accept the Project Management Concept. This important new concept which is being strongly recommended for adoption could result in chaos if the structure of the organization were not properly designed to cope with the new methods and procedures.

Basically, as Admiral Burke stated, "Good men can make poor organizations work well . . ."; it is up to the organizational planners to give good men equally good organizations to help them to do their jobs even better.





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